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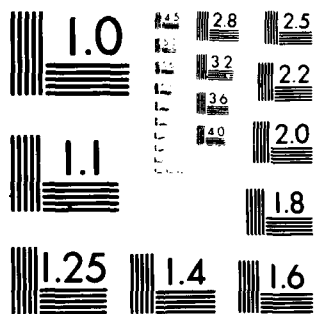UNCLASSIFIED   CRC-453   NL

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A RATING ASSIGNMENT PROCEDURE TO INCREASE FIRST-TERM RETENTION

James S. Thomason
Kathye D. Rutledge

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

Recruits who are 17 years old, or have fewer than 12 years of education, or did not participate in the Delayed Entry Program, and show no preference among A-school assignments can be assigned to A-schools in 60 ratings in a way that will increase their chances of completing the first term of service. The stability of these assignment guides is demonstrated across three recruit cohorts. The procedure can be incorporated easily and inexpensively into the Navy's rating assignment procedure.

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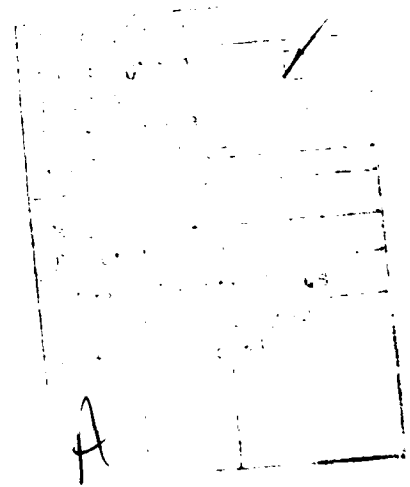Naval Studies Group

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A RATING ASSIGNMENT PROCEDURE TO INCREASE FIRST-TERM RETENTION

James S. Thomason
Kathye D. Rutledge

Institute of Naval Studies

CENTER FOR NAVAL ANALYSES

ABSTRACT

Recruits who are 17 years old, or have fewer than 12 years of education, or did not participate in the Delayed Entry Program, and show no preference among A-school assignments can be assigned to A-schools in 60 ratings in a way that will increase their chances of completing the first term of service. The stability of these assignment guides is demonstrated across three recruit cohorts. The procedure can be incorporated easily and inexpensively into the Navy's rating assignment procedure.

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INTRODUCTION AND SUMMARY

CNA analyses over the last few years have strongly implied that the Navy could increase enlisted retention inexpensively by exploiting rating-by-rating differences in first-term survival chances as a function of recruit characteristics [1, 2].

Meanwhile, the Navy has adopted an automated system to match a new recruit's interests and abilities with Navy preferences for rating assignments. This system, called CLASP (CLassification and ASsignment within Pride), incorporates several useful items of information and appears promising.* At the same time, CLASP could be improved by including explicit estimates of the first-term survival chances of particular types of recruits in specific ratings.

We have developed such a set of rating-specific survival chances. They are based on analyses of background and service history characteristics of recruits who entered the Navy in 1973, 1974, and 1976 and were assigned to 60 major Navy ratings.

Overall, these analyses support existing, aggregate evidence that ties a recruit's survival chances to his level of education, age, and participation in the Navy's Delayed Entry Program (D.E.P.) [3, 4]. In most ratings, less educated as well as younger recruits survive less often, other things equal, while participants in the D.E.P. survive more often.

The analyses also reveal some relatively stable differences across ratings in the magnitudes of survival effects of given recruit characteristics. A rating assignment procedure such as CLASP could exploit these differences to increase the overall survival rate of a cohort of new Navy recruits.

This report is presented in four sections. The first part summarizes the procedures used to estimate the survival probabilities of various types of Navy recruits by rating. The second presents the estimates derived from the three cohorts of recruits examined, and the third discusses the applicability of the estimates in rating assignment to augment Navy enlisted retention rates. The final part of the report offers a set of rating-specific survival estimates usable in the Navy's CLASP system.

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* The third section of this report outlines the basic components of CLASP.

SAMPLE SELECTION

To estimate recruit survival chances by rating, we needed to identify recruits by rating. To do so we used Navy records for all non-prior-service (NPS) USN males who began active duty in 1973, 1974, and 1976. For each of these annual cohorts, we extracted background and service history data for men who at least trained for the given rating. Appendix A summarizes the data and sample selection procedures. Table 1 identifies the 60 ratings examined and shows the sizes and four-year overall survival rates of the 19 rating groups used.*

In each sample, we included recruits who trained for the rating, whether or not they actually became rated (reached pay-grade E-4 in the rating). We did this because we wished to estimate the survival effects of assigning particular kinds of recruits to train for one versus another rating — assuming that the recruit is both eligible and willing to serve in the rating, as the men in these samples were.

Survival estimates were thus derived for all 60 ratings. For 37 ratings, estimates were obtained from each of three cohorts (CY 73, CY 74, CY 76); for the other 23 ratings, they were developed from the latter two cohorts (CY 74 and CY 76).

As table 1 shows, there is clear variation across rating groups and over time in the sizes of the samples. Such variation is not surprising. Size differences across rating groups in a given year are due both to the way individual ratings are grouped here for analysis and to differences in Navy demands for particular skills. Year-to-year size differences are due to changes in Navy demand for various kinds of trainees and success in attracting them.

As noted, table 1 presents the overall average four-year survival rates of men in each rating group. These rates differ somewhat across rating groups and over time; the differences are consequences of a mix of factors including pay, trainee quality, and economic conditions. But our prime interest is in the survival chances of particular types of recruits by rating, not with the overall survival rates. To assess those survival chances, we need to estimate the differences attributable to given recruit characteristics.

---

* Occupationally similar types of ratings were grouped together when individual ratings were too small to examine alone.

TABLE 1

SAMPLE SIZES AND OVERALL FOUR-YEAR SURVIVAL RATES IN MAJOR RATINGS/GROUPS
(1973, 1974, 1976 Cohorts)

Abbrev.	Major Rating/Group	Ratings[a]	Sample Sizes[b]			Overall probability of survival[c]		
			1973	1974	1976	1973	1974	1976
BT	Boiler technicians	BT	1729	2465	2192	.52	.54	.68
MM	Machinists mates	MM	2725	3573	3470	.64	.68	.78
EM/IC	Electricians	EM,IC	2142	2551	2396	.71	.80	.85
EN	Enginemen	EN	1030	1074	919	.64	.73	.77
HT	Hull technicians	HT	1381	1616	1800	.60	.69	.78
ET/FT	Weapons control	ET,FT	2128	3519	3901	.76	.85	.85
SENSOR	Sensor systems	ST,EW,OT	1045	968	1565	.77	.80	.80
RM/CT	Radiomen/communications	RM,CT	1646	2481	2588	.69	.81	.82
AVWEP	Aviation weapons	AT,AW,AQ,AC,AX	2105	2339	2137	.78	.85	.87
AVM	Aviation maintenance	AM,AD,AZ,AO	3512	5129	4966	.69	.77	.85
AB/AS/PR	Aviation support	AS,PR,AB	1096	1400	1177	.60	.66	.81
DT/HM	Health care	DT,HM	3445	2277	2893	.71	.80	.83
LOG	Logistics	MS,SK,AK,DK,SH	2580	2917	3390	.59	.66	.71
ADMIN	Administration	PN,YN,AZ,PC,AG	1569	1446	1566	.67	.73	.77
SUBTOTALS	14	37	28,133	37,755	34,690	.67	.74	.80
SHPMT	Ship maintenance	MR,ML,PM,IM,OM	NA[d]	529	483	NA	.70	.79
ORD	Ordnance	MN,HT,TM,GM	NA	1816	1998	NA	.66	.79
CONST	Construction	BU,CE,CM,EA,EO,SW,UT	NA	1685	1202	NA	.73	.71
OPS	Ship operations	QM,BM,SM	NA	1176	1443	NA	.65	.78
MEDIA	Media	PH,DM,JO,LI	NA	290	275	NA	.84	.85
SUBTOTALS	5	23	NA	5496	5401		.69	.77
Grand Totals	19	60	NA	39,251	40,361	NA	.74	.80

[a] See appendix B for a list of rating names.
[b] See appendix A for a description of sample selection procedures.
[c] These overall survival rates equal the total number of four-year survivors divided by the rating group sample size. These numbers include men with either four- or six-year contracts.
[d] These last five rating groups were analyzed only for CY 74 and CY 76.

ESTIMATION MODEL

For each rating group, a probit regression model was used to estimate the probability that a recruit with a particular combination of background and in-service characteristics would complete his first four years of service. Appendix C describes the model. Table 2 lists the characteristics used to estimate the survival chances of recruit types within each of the 19 rating groups. Next we present the basic findings from the regression analyses.

TABLE 2

VARIABLE DEFINITIONS[a]

Pre-Service Characteristics:

RACE	1 if nonwhite
PDEPS	1 if any primary dependents at enlistment
AGE17	1 if age at enlistment = 17
AGE18	1 if age at enlistment = 18
AGE19	1 if age at enlistment = 19
AGE20P	1 if age at enlistment $\geq$ 20
EDLT11	1 if years of education < 11 at enlistment
ED11	1 if years of education = 11
ED12	1 if years of education = 12
EDGT12	1 if years of education > 12
MG1-MG4[b]	

Early In-Service Characteristics:

GREAT LAKES (RTC1)	1 if bootcamp at Great Lakes Naval
SAN DIEGO (RTC2)	1 if bootcamp at San Diego
ORLANDO (RTC3)	1 if bootcamp at Orlando
DELAYED ENTRY (D.E.P)	1 if in Delayed Entry Program

Service Assignment Characteristics:

SEA	1 if sea/shore rotation duty is sea
SHORE	1 if sea/shore rotation duty is shore
TOURED SEA (TSEA)	1 if sea/shore rotation duty is toured sea
SURFACE (SURF)	1 if duty on surface combatant
SUBMARINE (SUB)	1 if duty on submarine
CARRIER (CV)	1 if duty on aircraft carrier
SEA BASED AIR (SBA)	1 if duty on sea based air
LAND BASED AIR (LBA)	1 if duty on land based air
REPAIR (REP)	1 if duty on repair vessel
AMPHIBIOUS (AMPH)	1 if duty on amphibious ship
AUXILIARY/PATROL (AUX)	1 if duty on auxiliary/patrol ship
OTHER	1 if duty on other activity assignments
RATING	(varies by rating group)

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[a]See appendix D for the proportions of each rating group sample with various characteristics.
[b]See appendix A for details.

BASIC FINDINGS

Table 3 offers the basic results of all the analyses. The findings are displayed to highlight any significant estimated effects of given recruit characteristics upon first-term survival chances — both within a rating group over time as well as across rating groups at any given point in time.

Table 3 may be read as follows. For each cohort, the intercept column contains the estimated chance of first-term, four-year survival by rating group of an NPS USN male with the background and early in-service characteristics given in table 4 and the activity, tour type and specific rating shown in table 5. Other columns in table 3 indicate any significant effects on a recruit's survival chances of his having any one characteristic not included in the intercept profile — such as participation in the Delayed Entry Program or age 17 at entry — all other things equal. For example, recruits entering the Navy in 1973 who had an intercept profile and trained as boiler technicians (BT) had an estimated 56 percent four-year survival rate. Otherwise identical recruits who trained as BTs but participated in the Delayed Entry Program had an estimated first-term survival rate of 61 percent, i.e., 56 plus 5 percent.*

Some interesting results appear in table 3. For instance, specific activity and tour-type variables, where they affect survival chances, tend to exhibit very stable signs. Where it makes a difference, assignment to submarines always has a positive effect on survival chances relative to the intercept activity type, as does toured sea duty. On the other hand, wherever it independently affects survival chances, assignment to an amphibious vessel always has an adverse effect.

Among early in-service variables, wherever it makes a significant difference, a six-year first-term contract always has a positive effect upon four-year survival chances, other things equal. The estimated effects upon survival chances of attending one or another boot camp are

---

* This procedure gives proper results when calculating survival chances of a recruit with one non-intercept characteristic, and yields approximately accurate probabilities even if the recruit has more than one non-intercept characteristic. In the latter case, however, the precise technique for calculating a recruit's survival chances is to add the probit coefficients (see appendix E) for those characteristics to the intercept probit coefficient, find the corresponding probability from a cumulative standardized normal distribution table, and then subtract that probability from 100 percent. This yields a consistent survival probability estimate for that recruit type (see appendix C for an example).

TABLE 3

ESTIMATED EFFECTS OF RECRUIT CHARACTERISTICS
ON NPS USN RECRUIT FOUR-SURVIVAL CHANCES
(1973, 1974, 1976 Cohorts, by Major Ratings/Groups)[a]

Rating/Group	Intercept Chance[b] 73	74	76	Age 17[c] 73	74	76	EDLT 11 73	74	76	ED11 73	74	76	D.E.P. 73	76
BT	56	61	70	.	-8	-5	-14	-12	-15	-12	-12	-16	5	6
MM	57	60	66	-6	-13	.	.	-8	-20	.	-11	-8	8	8
EM/IC	67	80	73	.	.	.	.	-18	-10	.	-13	.	6	7
EN	56	71	59	.	-10	.	9	.	-20	9	-15	.	12	14
HT	72	69	82	.	-6	-6	-8	-20	-20	-20	-14	-5	4	5
ET/FT	78	77	79	.	-9	-6	-46	.	-12	.	-9	-7	.	4
SENSOR	83	71	52	.	.	-10	.	-22	-17	.	-22	-11	8	9
RM/CT	70	85	79	.	.	-5	.	-10	-13	-7	-13	.	.	5
AVWEP	76	83	90	-6	-6	.	-6	-16	-9	.	-9	-8	8	7
AVM	73	82	86	.	.	-6	-10	-15	-18	-6	-9	.	5	3
AB/AS/PR	60	80	87	-4	.	.	-8	-14	-13	-10	-10	-5	11	.
DT/RM	78	75	86	-5	.	-10	-11	-26	-14	-8	-9	-7	.	3
LOG	58	68	66	.	.	-9	.	-24	-7	-7	-16	.	8	11
ADMIN	66	76	71	.	.	.	.	-15	-20	.	-11	-11	.	6
SHPMT	NA[d]	58	74	NA	.	-23	NA	-27	-18	NA	.	15	NA	10
ORD	NA	72	70	NA	-7	-8	NA	-19	-14	NA	-10	-8	NA	9
CONST	NA	77	61	NA	.	.	NA	-18	-17	NA	-17	-8	NA	.
OPS	NA	66	82	NA	.	.	NA	-23	-11	NA	-11	-8	NA	7
MEDIA	NA	67	66	NA	24	.	NA	-60	.	NA	-11	.	NA	19

[a] The estimated effects shown here are given as percentage point (not percent) changes from the "Intercept" survival probability estimates (see note b). See appendix C for a description of the probit model used to estimate these effects.

[b] The intercept estimates are for a recruit with the pre-service and early in-service characteristics shown in table 4 and with the activity, rating, and tour-type characteristics shown (for the relevant rating group) in table 5.

[c] This and all other "non-intercept" columns show any significant (t > 1.64) effects (percentage point changes in four year survival chances) resulting from substituting the given non-intercept characteristic for its counterpart in the intercept (e.g., age 17 for age 18), all other things equal. Insignificant estimates are identified with a dot (".") in this table. See appendix E for a full set of estimates.

[d] Survival equations for the last five rating groups shown in this table were estimated using only the CY 74 and CY 76 cohort groups.

TABLE 3 (Cont'd)

Rating/Group	Age 19 73	Age 19 74	Age 19 76	Age 20P 73	Age 20P 74	Age 20P 76	EDCT 12 73	EDCT 12 74	EDCT 12 76	MC3U 73	MC3U 74	MC3U 76	MC3L4 73	MC3L4 74	MC3L4 76	PDEPa 73	PDEPa 74	PDEPa 76	Non-Caucasian 73	Non-Caucasian 74	Non-Caucasian 76	Great Lakes 73	Great Lakes 74	Great Lakes 76	San Diego 73	San Diego 74	San Diego 76	6-Year Contract 73	6-Year Contract 74	6-Year Contract 76
BT	9	6	.	.	.	.	.	.	.	.	.	.	.	.	.	-15	.	-7	.	.	.	.	-4	.	.	.	-5	-	-	-
MM	.	.	.	10	.	.	.	6	7	.	.	.	.	.	.	.	-6	-7	.	.	9	.	4	.	.	.	.	6	9	5
EM/IC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-7	.	-7	8	12	-5	.	.	9	9	7
EN	.	.	.	.	.	.	.	.	.	.	.	.	.	.	9	.	.	.	.	.	.	.	7	.	.	8	.	-	-	-
HT	.	.	.	.	.	.	.	.	.	.	-7	.	.	.	-5	.	.	-8	.	.	.	.	4	.	-6	4	.	-	-	-
EF/FT	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-6	.	.	.	-8	.	.	-9	4	.	4	6	9
SENSOR	.	.	.	.	.	.	.	.	-9	.	.	.	.	-9	.	.	.	.	.	.	.	.	.	3	-6	4	.	4	.	9
RM/CT	.	.	.	.	.	.	.	.	-7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4	4	16	.	9
AVWEP	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-12	.	.	-9	.	.	7	.	3
AVH	.	.	.	.	.	-3	8	.	.	.	.	.	.	.	.	.	.	.	-7	.	.	-4	.	.	-5	3	2	-	-	-
AB/AS/PR	.	.	-4	.	.	-4	.	.	.	.	.	.	.	.	.	-15	.	-13	4	.	.	-16	-7	3	.	-4	6	-	-	-
DT/RM	8	.	.	.	7	-6	.	5	.	.	.	.	.	.	.	.	.	.	.	.	.	-5	-4	.	-10	-4	.	-	-	-
LOG	8	.	.	.	.	-6	.	8	9	.	.	.	.	.	.	.	8	-12	.	.	6	.	.	.	.	.	8	-	-	-
ADMIN	NA	.	-14	NA	.	.	.	41	16	NA	.	.	.	.	.	.	8	.	NA	.	.	NA	.	8	NA	.	10	-	-	-
SHPMT	NA	.	.	NA	.	.	NA	.	.	NA	.	.	.	.	.	.	.	.	NA	.	.	NA	.	7	NA	.	.	-	-	-
ORD	NA	-6	.	NA	.	.	NA	.	.	NA	.	.	.	.	.	.	.	.	NA	.	.	NA	-5	.	NA	.	.	-	-	-
CONST	NA	.	.	NA	.	.	NA	12	.	NA	.	.	.	.	.	.	.	.	NA	.	.	NA	.	.	NA	.	.	-	-	-
OPS	NA	8	.	NA	.	-6	NA	.	.	NA	.	.	.	.	.	NA	-20	.	NA	.	.	NA	.	.	NA	.	.	-	-	-
MEDIA	NA	.	.	NA	.	.	NA	.	21	NA	.	.	.	.	.	.	.	.	NA	.	.	NA	.	.	NA	.	.	-	-	-

eNon-trivial numbers of six-year obligors were found only in the MM, EM/IC, ET/FT, SENSOR, RM/CT, and AVWEP ratings/groups. The effect of a 6YO obligation was therefore estimated only in these groups. See appendix D for the proportions of 6 YOs identified.

TABLE 3 (Cont'd)

Rating/Group	Tour Type (Toured)									Activity																						
	Sea Duty			Sea Duty			Shore Duty			Surf Comb.			CV			SUB			Repair			AMPH			AUX			Other		
	73	74	76	73	74	76	73	74	76	73	74	76	73	74	76	73	74	76	73	74	76	73	74	76	73	74	76	73	74	76
BT	I	I	I	.	6	8	.	-13	7	.	.	I	.	6	9	.	.	I	.	.	.	.	.	.	.	.	.	I	I	I
MM	I	I	I	.	6	7	I	I	-9	I	I	I	.	6	.	13	20	19	.	.	.	.	-8	.	.	.	.	I	I	I
EM/IC	.	.	I	13	11	6	I	I	I	I	I	I	.	.	.	11	10	12	.	-10	.	-12	-6	.	.	.	.	I	I	I
EN	I	I	I	.	.	.	I	10	-16	I	I	I	.	.	.	I	I	I	.	.	.	-16	.	.	.	.	.	I	I	I
HT	I	I	I	.	.	7	I	I	I	I	I	I	.	.	.	I	8	I	.	.	-9	.	.	-15	.	.	-11	I	I	I
ET/FT	.	.	.	.	.	.	I	I	I	I	I	I	.	-50	.	.	.	25	I	.	.	.	.	.	.	-53	.	.	.	I
SENSOR	.	.	.	10	8	12	I	-15	I	I	I	I	.	-9	.	.	.	I	.	-13	.	.	-10	.	.	-18	.	I	0	I
RM/CT	.	.	.	.	.	.	I	I	I	I	I	I	.	-15	.	I	I	I	I	I	-10	I	I	I	I	I	I	I	I	I
AVMEP	.	.	.	.	8	.	I	5	I	I	I	I	.	-17	.	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
AVH	.	-5	.	.	.	.	I	I	I	-11	I	I	.	-10	.	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
AB/AS/PR	-8	I	I	.	I	I	I	I	I	I	I	I	.	.	.	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
DT/RM	I	I	I	11	.	8	I	.	I	I	I	I	.	.	.	I	I	I	I	I	I	I	-14	.	I	I	I	I	I	I
LOG	-7	I	.	I	I	.	I	I	I	I	I	I	.	.	.	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
ADMIN	NA	I	.	NA	15	.	NA	10	I	NA	I	I	NA	.	.	NA	.	I	NA	I	I	NA	I	.	NA	.	.	NA	I	I
SHPMT	NA	I	I	NA	.	11	NA	6	I	NA	I	I	NA	.	.	NA	8	14	NA	I	I	NA	I	.	NA	I	.	NA	I	I
ORD	NA	15	I	NA	.	.	NA	I	I	NA	I	I	NA	.	.	NA	.	.	NA	I	I	NA	I	.	NA	1	1	NA	I	I
CONST	NA	I	I	NA	.	.	NA	I	I	NA	I	I	NA	.	.	NA	I	I	NA	I	I	NA	I	I	NA	8	-6	NA	.	-37
OPS	NA	I	I	NA	.	.	NA	I	I	NA	I	I	NA	I	I	NA	I	I	NA	I	I	NA	I	I	NA	I	I	NA	I	I
MEDIA	NA	.	.	NA	.	.	NA	I	I	NA	I	I	NA	I	I	NA	I	I	NA	I	I	NA	I	I	NA	I	I	NA	I	I

fSince the tour type and activity-type placed in the intercept varied by rating group, an "I" is used here to identify categories found in a relevant rating group intercept. See appendix E for any significant effects of different ratings within a rating group.

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also interesting. For the 1973 cohort, wherever they had significantly different effects from the intercept value (Orlando), Great Lakes or San Diego always appears to reduce the chances of four-year survival. In the 1974 cohort estimates, however, Great Lakes or San Diego sometimes hurt survival chances and sometimes helped. But, by the 1976 cohort, wherever they made a difference, Great Lakes and San Diego always appear to confer a survival advantage relative to Orlando. This is the most clearcut instance of a sign shift from cohort to cohort in the entire analysis.* Participation in the Navy's Delayed Entry Program never appeared to reduce a recruit's survival chances, regardless of rating group or cohort. Furthermore, it increased survival chances in every rating group in at least one cohort, and increased such chances in almost every rating group in at least two cohorts.

TABLE 4

INTERCEPT PROFILE FOR PRE-SERVICE AND EARLY
IN-SERVICE CHARACTERISTICS IN ALL RATINGS/GROUPS

Variable	Score
Age	18 Years
Education	12 Years
Mental Group	1 or 2
Dependents	None
Race	Caucasian
Entry Status	Direct ship (not D.E.P.)
Term of Contract	4 Years
Boot Camp	Orlando, Fla.

Among pre-service variables, mental group and race had generally very scattered and negligible effects upon survival chances, and their signs were mixed. No rating group exhibited significant effects of mental group or racial differences upon survival chances in more than one cohort. The estimated effects upon four-year survival chances of

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* Management changes might account for some of this instability. At the same time, if the boot camp variables are proxies for the recruit's hometown or home region, and if home region civilian opportunities for recruits from the South (i.e., bootcamp in Orlando) improved significantly over the time period relative to such opportunities for recruits who trained at Great Lakes or San Diego, this could account for the rather striking sign shifts. In short, men who trained in Orlando may have had (or at least believed they had) increasingly better civilian opportunities and so left the service at higher rates than men from other parts of the country.

recruits having dependents are notable. All but one significant esti-
mate are negative. Although having dependents did not significantly
affect recruit survival chances in many rating groups, in five ratings
(BT, MM, AB, AS, PR) out of 60 it was significant and negative in two of
the three cohorts.

Of the other two pre-service variables, age and education, the
clearest divisions of effects on survival chances were between age 17
versus age 18 or older, and between education less than 12 years versus
education 12 years or more.

TABLE 5

INTERCEPT ACTIVITY, RATING, AND TOUR-TYPE
PROFILES IN MAJOR RATINGS/GROUPS

Rating/Group	Activity	Rating	Tour-Type
Boiler technicians	SURF	BT[a]	SEA
Machinists mates	SURF	MM[a]	SEA
Electricians	OTHER [b]	EM	SEA
Enginemen	OTHER	EN[a]	SHORE
Hull technicians	OTHER	HT[a]	SHORE
Weapons control	OTHER	ET	SEA
Sensor systems	OTHER	ST	SHORE
Radiomen/communications	OTHER	RM	SHORE
Aviation weapons	SEA BASED AIR	AT	SHORE
Aviation maintenance	OTHER	AM	SHORE
Aviation support	OTHER	AB	SHORE
Health care	OTHER	HM	SEA & TOURED SEA
Logistics	OTHER	MS	SEA
Administration	OTHER	PN	SHORE
Ship maintenance	SURF,OTHER	MR,ML,PM,IM,OM	SEA
Ordnance	SURF,OTHER	MN,MT,GM	SEA
Construction	ALL BUT SEABEES	EO,EA	SHORE
Ship operations	SURF, REP	QM,BM	SEA
Media	ALL	PH,DM,JO,LI	SHORE

[a]Only one rating in these ratings/groups.
[b]"Other" means a residual-type (non-ship/squadron duty) activity
assignment.

Wherever it had a significant effect on survival chances relative
to age 18, age 17 at entry always hurt those chances. Moreover, in
seven of the rating groups, age 17 had significant effects in at least
two of the cohorts. By contrast, age 19 as well as age 20 or greater

each had mixed signs (relative to age 18). In only one rating out of 60 (BT) did either age 19 or age 20 or older have a significant effect with the same sign in more than one cohort.

Education less than 12 years* virtually always had an adverse effect upon survival chances relative to 12 years of education. Either EDLT11 or ED11 had a significant adverse effect on recruit survival chances in every rating group in at least one cohort. Virtually every rating group showed significant adverse effects for ED11 in at least one cohort, and in about two-thirds of the rating groups ED11 displayed a significant adverse effect on recruit survival in at least two of the cohorts. Where it did make a difference, education greater than 12 years usually conferred a survival advantage (relative to ED12), but only three rating groups displayed significant effects for education greater than 12 years in more than one cohort.

While interesting, these results are only part of the story contained in table 3. There is also variability from cohort to cohort in the estimated effects of a recruit characteristic on survival chances in a rating group. Furthermore, there are a number of clear changes from year to year in the intercept survival estimates for rating groups. What are the implications of these differences for a rating assignment procedure?

STABILITY OF ESTIMATES

Two conditions are necessary for a workable rating assignment procedure to enhance retention: (1) enough variability in the estimated survival effects of recruit characteristics across ratings to offer a potential gain in overall survival if differences across ratings are exploited; and (2) a stable pattern of estimated differences across ratings through time.

Our earlier work addressed the first condition [2]. This brings us to the question of stability.

There are several types of stability. The relevant one for our purposes has to do with the stability over time of the rank-order (across rating groups) in the estimated survival effects of given recruit characteristics. To clarify, consider the simple case shown in table 6.

For each of two jobs, table 6 shows five hypothetical estimates of the survival effects of having less than 12 years of education compared to having 12 years of education. According to the first four estimates, a recruit's survival chances are hurt more in job 2 by having less than 12 years of education than they are in job 1. Conversely, a recruit's

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* Either education less than 11 years or education equal to 11 years.

survival chances are helped more in job 2 by having 12 years of educa-
tion than they are in job 1. But this pattern is completely reversed in
the fifth set of estimates, where the rank-order of effects is the
opposite or mirror image of that in the first four sets.

TABLE 6

HYPOTHETICAL EFFECTS OF EDLT12 (Compared to ED 12) ON RECRUIT SURVIVAL CHANCES IN TWO JOBS

Job	Hypothetical Effects (in % Points)				
	#1	#2	#3	#4	#5
Job 1	-2	-3	-1	+1	-1
Job 2	-6	-7	-5	-1	+1

The rank-order stability displayed among the first four sets of
estimates in table 6 is precisely what is important in a rating assign-
ment procedure; the rank-order reversal between the first four estimates
and the fifth is exactly the kind of instability we do not want. In
other words, we want enough agreement over time among the rank-orders of
the survival effects for a given characteristic that they do not guide a
recruit away from a job (rating) one year and toward that same job the
next year.

In these terms, an analysis of the agreement over time among the
rank-orders (across ratings) of the survival effects for given charac-
teristics is instructive. It strongly suggests that no net damage to
overall survival rates would be likely should the Navy use any of the
three sets of estimated effects as a component of CLASP. Specifically,
table 7 presents the correlations among the rank orders of the estimated
effects for the three recruit characteristics we have identified as the
most exploitable in a rating assignment procedure to enhance retention.*

While the results do show some variability from cohort to cohort in
the rating groups to which it would be more or less advantageous to
assign recruits with these characteristics, it is notable that none of

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* These recruit characteristics (education less than 12 years, age 17,
and participation in the Delayed Entry Program) are singled out here as
most clearly exploitable because, of those recruit characteristics known
to the classifiers in time to be usable in rating assignments, they are
the only ones that display both substantial variability across rating
groups and sign stability in all cohorts.

the correlations is significantly negative.* Thus no clear "mirror-imaging" occurs among the rank-orders of these estimated survival effects for key characteristics over the three cohorts. This implies that net damage to overall survival rates would be unlikely should the Navy use any one of these sets of estimates in CLASP.**

TABLE 7

RANK-ORDER CORRELATIONS AMONG SURVIVAL
EFFECTS OF KEY VARIABLES[a]

	CY Cohort Comparison		
	73-74	73-76	74-76
EDLT12	-.11 (0.35)	.27 (0.17)	.27(0.18)
D.E.P.	-.30 (0.15)	.25 (0.19)	.27(0.18)
AGE17	.20 (0.25)	.29 (0.16)	-.14(0.31)

[a]Spearman's rho (parenthesized figures are significance levels).

On the other hand, while a minimal chance of damage is reassuring, this does not by itself make the use of these estimates worthwhile. Therefore it is particularly important to recognize that our earlier work [2] has already demonstrated that the Navy has a low-cost opportunity to use these estimates to achieve a real gain in the overall first-term survival rate of enlisted men. Reference 2 documents the results of selected simulated reassignments using rating-specific estimates from the first (CY 73) cohort. It shows that the overall cohort survival rate could be increased by as much as ten percent. Now exactly how great this gain would be in practice is difficult to determine. Nonetheless, in light of both our earlier work and these analyses, it is

* No significant inverse correlations are found in these tests at all. The only inverse correlations occur in comparisons with CY 74 rank-orders.

** The argument here is as follows. We have no evidence suggesting that the Navy does better than random assignment (of eligible recruits) in terms of the overall survival rate. Our analyses suggest it is very unlikely that the "true" survival effects of these key characteristics are strongly inversely related to the rank-orders we have identified. More likely is that they are positively correlated. This suggests that, at worst, use of these estimates is very unlikely to lead to worse than random assignments in terms of impact on overall survival rates.

reasonable to expect an increase of several percentage points in the overall, first-term, four-year survival rate.

SURVIVAL EFFECTS AND RATING ASSIGNMENTS

CLASP

The Navy has adopted a formal, computerized, rating assignment guide called CLASP (CLassification and ASsignment within Pride) as part of its A school seat reservation system. The Navy rating classifier uses CLASP interactively in "selling" a new enlistee a training program for a particular rating.

The system works as follows. First, CLASP utilizes the recruit's ASVAB test scores and other background data to identify the ratings for which he is eligible. At the same time, the program determines the weighted sum — for each rating — of several parameters: (1) current manpower shortages, by rating; (2) current Navy "shortages," if any, of minority group members in each rating; (3) the given enlistee's estimated chance of "success" in the A school(s) for each rating.* The rating with the highest sum (of those he is eligible for) is the Navy's top rating preference for the enlistee; the second highest rating becomes the Navy's second preference, and so on.

Finally, with this rank-ordered list of ratings in hand, the classifier attempts to "sell" the recruit the rating that CLASP ranks him highest on. If that top Navy preference doesn't suit the recruit, the classifier works down the list until the recruit finds one he will accept.

CLASP builds upon earlier assignment schemes devised for the U.S. Air Force beginning in the late 1950s (see [5]). It has been developed for the Navy by the Naval Personnel Research and Development Center in conjunction with NMPC-48 and the Naval Recruiting Command.

CLASP offers the Navy a significant opportunity to provide rating classifiers timely information on ratings with manpower shortages. Moreover, it provides an integrated nation-wide framework for achieving additional Navy policy objectives through the rating assignment process. While A school success chances clearly comprise one useful parameter in determining the Navy's rating preferences for a particular recruit, it is by no means the only one.

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* The "shortage" scores on the first two parameters are updated as new recruits are assigned to ratings and as Navy policy changes. They are "system" parameters and do not depend on the particular enlistee's characteristics. On the other hand, the enlistee's own ASVAB test scores are used to compute his expected A-school success chances, by rating.

RECOMMENDATION

We recommend that the Navy consider adding a parameter in CLASP that will explicitly operate to increase overall first-term retention rates. This component would systematically encourage eligible recruits to join ratings in which their expected survival chances would be hurt the least (or helped the most) relative to those of other eligible recruits.

The rating-specific survival estimates developed here represent an inexpensive opportunity for the Navy to increase overall first-term retention. The final section now presents a set of such estimates for use in the CLASP system.

SURVIVAL EFFECT TABLES USABLE IN CLASP

The analyses in this report demonstrate relatively good rank-order consistency over time in the rating-by-rating survival "effects"* of key recruit characteristics. Given this, how might the Navy use these effects in the rating assignment process to enhance the overall first-term survival rate of an incoming group of recruits? This section describes a viable procedure and presents a set of estimated survival effects usable within CLASP.

The objective is not necessarily to assign a given recruit to the rating in which he is most likely to survive. Rather, it is to place him in the rating in which he most helps to increase the overall survival rate of an incoming group of recruits. To achieve this objective, the Navy should encourage a particular recruit to join the rating in which he has the greatest survival advantage (or smallest survival disadvantage) relative to the alternative candidates for the rating.

A SURVIVAL COMPONENT FOR CLASP

Given the existing CLASP framework, the most practical approach to this problem will be to establish a survival effect rank-order across ratings for each key recruit type. Table 8 offers just such a set of rank-orders, one for each of seven key recruit types.

The values in each column of the table represent the estimated average effect on a recruit's four-year survival chances in each rating of his having the characteristics shown atop the column — relative to the chances of a recruit who is 18 years old or more at entry, has 12 or more years of education, and participates in the D.E.P.**

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*A survival "effect" is defined here as the percentage point difference in the four-year survival chances of a given type of recruit compared to the chances of the "intercept" type of recruit in a given rating.
** The survival effects in table 8 consist of the simple average of all the relevant estimates for the given characteristic(s) as shown in table 3. (2) Insignificant estimates are treated as equal to zero: almost none are significantly different from zero anyway; in addition, there is no compelling reason to include them. (3) Since the Navy is now accessing almost no recruits with less than 11 years of education, table 8's estimates for the effects of less than 12 years of education are based on the estimated effects of 11 years of education only. (4) In table 8, we have simply reversed the signs of estimated effects of D.E.P. that were shown in table 3: this will be simpler and should accomplish the same purpose. (5) Due to the very scattered effects of other recruit characteristics as estimated in these analyses, only the effects of age 17, education less than 12 years, and not-being D.E.P.ed are included in these rank-ordered lists. (6) The values in those columns of this table which apply to recruits with more than one "non-intercept" characteristic, represent the sums of the separate average effects of each such characteristic.

TABLE 8

AVERAGE EFFECTS OF KEY VARIABLES
ON FOUR-YEAR SURVIVAL CHANCES
(In Percentage Points, by Rating)

	RECRUIT TYPES						
	Age 17	Age 18	Age 18	Age 17	Age 18	Age 17	Age 17
	EDGE12	EDLT12	EDGE12	EDLT12	EDLT12	EDGE12	EDLT12
Rating	D.E.P.	D.E.P.	D.S.	D.E.P.	D.S.	D.S.	D.S.
AB	00	-09	-05	-09	-14	-05	-14
AC	00	-03	-05	-03	-08	-05	-08
AD	-06	-07	-05	-13	-12	-11	-18
AE	-06	-07	-05	-13	-12	-11	-18
AG	00	-04	-10	-04	-14	-10	-14
AK	-04	-11	-10	-15	-21	-14	-25
AM	-06	-07	-05	-13	-12	-11	-18
AO	-06	-07	-05	-12	-12	-11	-18
AQ	00	-03	-05	-03	-08	-05	-08
AS	00	-09	-05	-09	-14	-05	-14
AT	00	-03	-05	-03	-08	-05	-08
AW	00	-03	-05	-03	-08	-05	-08
AX	00	-03	-05	-03	-08	-05	-08
AZ	00	-04	-10	-04	-14	-10	-14
BM	00	-09	-10	-09	-19	-10	-19
BT	-04	-13	-07	-17	-20	-11	-24
BU	-02	-08	-03	-10	-11	-05	-13
CE	-02	-08	-03	-10	-11	-05	-13
CM	-02	-08	-03	-10	-11	-05	-13
CT	-02	-09	-03	-11	-12	-05	-14
DK	-04	-11	-10	-15	-21	-14	-25
DM	00	00	-17	00	-17	-17	-17
DP	--	--	--	--	--	--	--
DS	--	--	--	--	--	--	--
DT	-05	-06	-04	-11	-10	-09	-15
EA	-02	-08	-03	-10	-11	-05	-13
EM	-00	-04	-04	-04	-08	-04	-08
EN	-03	-02	-10	-05	-12	-13	-15
EO	-02	-08	-03	-10	-11	-05	-13
ET	-05	-05	-06	-10	-11	-11	-16
EW	-03	-10	-09	-13	-19	-12	-22
FT	-05	-05	-06	-10	-11	-11	-16
GM	-04	-05	-08	-09	013	-12	-17
HM	-05	-06	-04	-11	-10	-09	-15
HT	-04	-13	-08	-17	-21	-12	-25
IC	-00	-04	-04	-04	-08	-04	-04
IM	-12	+07	-05	-05	+02	-17	-10

TABLE 8 (CONT'D)

| | RECRUIT TYPES | | | | | | |
| | Age 17 EDGE12 D.E.P. | Age 18 EDLT12 D.E.P. | Age 18 EDGE12 D.S. | Age 17 EDLT12 D.E.P. | Age 18 EDLT12 D.S. | Age 17 EDGE12 D.S. | Age 17 EDLT12 D.S. |
Rating							
IS	—	--	--	--	--	--	--
JO	00	00	-17	00	-17	-17	-17
LI	00	00	-17	00	-17	-17	-17
LN	--	--	--	--	--	--	--
MA	—	--	--	--	--	--	--
ML	-12	+07	-05	-05	+02	-17	-10
MM	-06	-06	-08	-12	-14	-14	-20
MN	-04	-05	-08	-09	-13	-12	-17
MR	-12	+07	-05	-05	+02	-17	-10
MS	-04	-11	-10	-15	-21	-14	-25
MT	-04	-05	-08	-09	-13	-12	-17
MU	--	--	--	--	--	--	--
NC	—	--	--	--	--	--	--
OM	-12	+07	-05	-05	+02	-17	-10
OS	00	-11	-00	-11	-11	00	-11
OT	-03	-10	-09	-13	-19	-12	-22
PC	00	-04	-10	-04	-14	-10	-14
PH	00	00	-17	00	-17	-17	-17
PM	-12	+07	-05	-05	+02	-17	-10
PN	00	-04	-10	-04	-14	-10	-14
PR	00	-09	-05	-09	-14	-05	-14
QM	00	-09	-10	-09	-19	-10	-19
RM	-02	-09	-03	-11	-12	-05	-14
SH	-04	-11	-10	-15	-21	-14	-25
SK	-04	-11	-10	-15	-21	-14	-25
SM	00	-08	-10	-08	-18	-10	-18
ST	-03	-10	-09	-13	-19	-12	-22
SW	-02	-08	-03	-10	-11	-05	-13
TD	--	--	--	--	--	--	--
TM	-04	-05	-08	-09	-13	-12	-17
UT	-02	-08	-03	-19	-11	-05	-13
YN	00	-04	-10	-04	-14	-10	-14

As part of CLASP, the first column would thus apply to a recruit who has 12 years or more of education, is willing to be D.E.P.ed, but is only 17 years old. This type of recruit would be encouraged to join ratings that display the smallest negative values (or largest positive values, if any) in <u>this</u> list. Other columns may be interpreted in the same way — for the specific recruit type to which they apply.

Overall, for an incoming recruit with any of the profiles listed in table 8, the appropriate column for his recruit type would be used — in conjunction with other CLASP parameters — to determine a Navy preference list of rating assignments for the recruit.

TECHNICAL ISSUES

Several technical issues should be mentioned. First, from the standpoint of a survival effect parameter, what ratings should the most common type of new Navy recruit be encouraged to join, i.e., the 18 year old with 12 or more years of education who is willing to be D.E.P.ed? A good case can be made for not building <u>any</u> explicit guidance (rank-ordered list) for this type of recruit into an initial survival component of CLASP. First, it would be the simplest procedure. More importantly, it is not clear that the recruit types <u>explicitly</u> listed in table 8 would thereby lose much opportunity to join those ratings where they would most help the overall first-term survival rate. If explicit guidance for this type of recruit is found to be of value within a survival component of CLASP after an initial period, it could then be added.

A second issue concerns the few ratings in table 8 for which no survival effects are listed. Estimates for these ratings would likely be highly unreliable — given the small numbers of men in each. For purposes of the CLASP indices, these few ratings could reasonably be assigned average (median) positions in each column of the table.

Third, the values in table 8 may need to be rescaled to be compatible with other CLASP parameters. This is a matter best determined by NMPC-48 and NPRDC. Finally, it should be noted that use of a survival parameter in CLASP will require a policy decision as to the weight this component should be given relative to other parameters currently included.

CONCLUSION

The Navy's CLASP framework appears to offer a promising manpower management tool. The early addition of an explicit survival component can perform a useful and important role in improving the first-term survival rate of enlisted personnel at very low cost.

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APPENDIX A

SAMPLE SELECTION, DATA, AND VARIABLE DEFINITIONS

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SAMPLE SELECTION, DATA, AND VARIABLE DEFINITIONS

SAMPLE SELECTION PROCEDURES

Only male, non-prior-service, Regular Navy recruits (Branch/Class 11) with at least a four-year, first-term Navy contract were included in these analyses.* Data on background and early-in-service variables for each of these recruits came from Navy SCAT tapes; training, rating, activity, tour-type and survival/loss data for each recruit were gleaned from longitudinal files of Enlisted Master Records (EMRs) compiled at CNA. Mardac (now DMDC) and NMPC loss tapes were also used as available.

RATING IDENTIFICATION

To identify the specific rating a recruit trained for, school history and rate abbreviation fields from the EMRs were used. If the recruit had "successfully attended" at least one A school relevant to the rating** or had been a "designated striker" in the rating,*** he was

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* In addition, recruits were not included in any of the samples unless: (1) their records contained adequate data on mental group (BTB at least equal to 60; AFQT greater than 0); (2) they completed at least six months of active duty before leaving the Navy; (3) they had been assigned an onboard accounting category code (associated with their first activity) between 1 and 150, inclusive. These criteria were a practical solution to certain data problems encountered in constructing the CY 1973 cohort samples. They were then used in building subsequent cohorts to maintain comparability. Fortunately, selected special analyses of rating group samples which did not exclude men on these three additional criteria yielded results very similar to the initial estimates for those rating groups.

** For the CY 73 cohort, "successful attendance" meant attendance of at least one relevant A school course "without failure;" for the CY 74 and CY 76 cohorts, it meant completion of at least one relevant A school course. Lists of A school courses relevant to each rating were obtained from NITRAS.

*** Men who did not successfully attend a relevant A school but who were identified on their last EMR as (1) designated strikers (pay grade E1-E3) training for the rating, or as (2) rated in the rating (pay grade E4 or above) were also included in the particular rating group — so long as they entered the Navy with some special program in the rate field (CY 73, CY 74) or with a relevant "Program Enlisted For" code (CY 76). A recruit's "last" EMR for these purposes consisted of either (1) the last EMR on which the Navy kept records for the man (if he left prior to four years), or (2) the last (10th) EMR examined for each of these respective cohorts — used to determine whether the man completed four years of service.

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included in the appropriate rating group sample — so long as he also
met the criteria already mentioned above (NPS, Branch/Class 11, at least
a four-year contract) and had an active duty service date falling in the
year appropriate to his cohort.

SELECTED OPERATIONAL DEFINITIONS

Most variables used in these analyses have relatively straight-
forward definitions. Several do not, particularly four-year survival,
term of service, mental group, activity, and tour type. The following
descriptions may be of value.

Four-Year Survival

For all analyses in this report, a recruit was considered to have
survived (completed) four years of active duty if his records showed
either (1) more than 45 months of active duty service and a DoD loss
code indicating he was "not a true loss to the Navy," e.g., he partici-
pated in an "early-out" program, or (2) at least 48 months of active
duty service. Months of service were generally computed as a recruit's
loss date (if any) minus his active duty service date, but approximation
procedures were needed in certain instances.

Term of Service

Most recruits in these analyses had a regular four-year active duty
contract with the Navy. However, recruits entering advanced electronics
and nuclear fields had to accept a six-year term of obligation. For the
CY 73 cohort, six-year obligors (6YOs) were identified by a "term at
entry" variable which distinguished well between 4YOs and 6YOs. For the
CY 74 cohort, the term at entry variable was no longer a useful classi-
fication device, so recruits with either an advanced electronics (AE) or
a nuclear field (NF) designator in the rate code field were identified
as 6YOs. For the CY 76 cohort, a "Program Enlisted For" field was used
to identify AEs and NFs: neither "term at entry" nor rate code fields
contained suitable data.

Mental Group

During the 1970s, the tests and norms used to classify Navy appli-
cants and recruits as to mental aptitude changed several times. Al-
though mental group scores had very little value as a predictor of
survival chances within any of the rating groups examined in this study,
the norms and categories used were:

CY 73 Cohort

Mental groups were based on the Navy version of the AFQT derived
from BTB form 7. See reference 6, table 17.

CY 74 Cohort

If BTB was given, mental groups were based on BTB form 7 or 8 as
follows: MG1 = 190+; MG2 = 161-189; MG3U = 148-160; MG3L = 136-147; MG4
= 1-135. If ASVAB was given: MG1 = 95+; MG2 = 63-94; MG3U = 53-62;
MG3L = 41-52; MG4 = 15-40.

CY 76 Cohort

If BTB was used, mental groups were based on norms given in the
last two columns of table 3, reference 6. If ASVAB was used, mental
groups were based on ASVAB norms given for 1/76 through 8/76 in table 3,
reference 6.

Activity and Tour Type

The activity group was determined by classifying the information in
the first activity type field into homogeneous groups. Table A-1 shows
the components of each group.

The sea, toured sea, and shore variables were created using the
first sea/shore code assigned to each man for rotation purposes. Table
A-2 details the construction of these variables.

TABLE A-1

ACTIVITY GROUPS

Surface Combatants	Repair	Land-Based Air	Auxiliaries/Patrol	
CA	AD	HTR	ATF	PCH
CG	SR	RHAW	ATS	PG
CGN	ARS	TRAR	AE	MSO
CLG	AS	TRAW	AF	DUS
DD	Sea-Based Air	VC	AFS	
DDG	HC	VQ	AFDL	
DE	HM	VP	AFDM	
DEG	HS	VQ	AFDB	
DLG	HSL	VR	AG	
DLGN	MFA	VRC	AGF	
FF	VA	VRF	AGP	
FFG	VAW	VT	AGDE	
Carriers	VAQ	VX	AGDS	
CV	VG	VXN	AGEH	
CVA	VH	VW	AGFF	
CVAN	VF	Amphibious	AH	
CVN	VS	LCC	AO	
CVS	VXE	LHA	AOE	
CVT	SEABEES	LKA	AOR	
Submarines	CBE	LPA	ARD	
SS	CBJ	LPD	ARDM	
SSN	BMU	LPH	ASR	
SSBN		LSD	AVM	
AGSS		LST	AOG	

TABLE A-2

SEA/SHORE CATEGORIES

Category	Onboard Sea/Shore Code
Sea	2
Shore	1, 3, 5, 6[a]
Toured sea (non-rotated ships)	4

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[a] 1 Shore duty
2 Overseas duty
5 Neutral duty
6 Preferred overseas shore duty.

A-4

APPENDIX B

NAVY RATINGS

APPENDIX B

NAVY RATINGS

This appendix provides an alphabetical listing of all basic Navy ratings and rating abbreviations.

NAVY RATINGS

Abbrev.	Title	Abbrev.	Title
AB	Aviation Boatswain's Mate	IC	Interior Communications Technician
AC	Air Traffic Controller		
AD	Aviation Machinists Mate		
AE	Aviation Electricians Mate	IM	Instrumentman
AG	Aerographers Mate	IS	Intelligence Specialist*
AK	Aviation Storekeeper		
AM	Aviation Structural Mechanic Technician	JO	Journalist
		LI	Lithographer
AO	Aviation Ordnanceman	LN	Legalman*
AQ	Aviation Fire Control Technician	MA	Master-At-Arms*
		ML	Molder
AS	Aviation Support Equip. Technician	MM	Machinists Mate
		MN	Mineman
AT	Aviation Electronics Technician	MR	Machinery Repairman
		MS	Mess Management Specialist
AW	Aviation ASW Operator		
AX	Aviation ASW Technician	MT	Missile Technician
AZ	Aviation Maintenance Administrationman	MU	Musician*
		NC	Navy Counselor*
BM	Boatswain's Mate	OM	Opticalman
BT	Boiler Technician	OS	Operations Specialist**
BU	Builder		
CE	Construction Electrician	OT	Ocean Systems Technician
CM	Construction Mechanic		
CT	Cryptologic Technician	PC	Postal Clerk
DK	Disbursing Clerk	PH	Photographer's Mate
DM	Illustrator-Draftsman	PM	Pattern Maker
DP	Data Processing Technician*	PN	Personnelman
		PR	Aircrew Survival Equipmentman
DS	Data Systems Technician*		
DT	Dental Technician	QM	Quartermaster
EA	Engineering Aid	RM	Radioman
EM	Electricians Mate	SH	Ships Serviceman
EN	Engineman	SK	Storekeeper
EO	Equipment Operator	SM	Signalman

---

*No estimates for these ratings.

B-1

Abbrev.	Title	Abbrev.	Title
ET	Electronics Technician	ST	Sonar Technician
EW	Electronics Warfare Technician	SW	Steelworker
		TC	Tradesman*
FT	Fire Control Technician	TM	Torpedoman's Mate
GM	Gunner's Mate	UT	Utilitiesman
HT	Hull Technician	YN	Yeoman

*No estimates for these ratings.

APPENDIX C

THE PROBIT MODEL

APPENDIX C

THE PROBIT MODEL

In estimating a recruit's chances of completing four years of service from pre-service and in-service characteristics, we want to examine the effect of altering each characteristic while holding all others constant.

A common method for doing this specifies the variable to be esti-mated (survival probability) as a linear function of the other vari-ables. Ordinary least squares (OLS) regression would then provide estimates of the survival probability and the separate effect of each independent (explanatory) variable. OLS is not strictly appropriate, however, when using a dichotomous dependent variable as we do here. Our data indicate that a man either did or did not survive four years of service. The dependent variable therefore can take on only two values, and is dichotomous.

Several appropriate techniques do exist for coping with dichotomous dependent variables, including the Probit model [7]. If we let P denote the probability that a man will not compete four years of service, then the probit equation to be estimated is

$$\text{Prob (loss}|x) = \int_{-\infty}^{B'x/\sigma} \frac{1}{\sqrt{2\pi}} (e^{-z^2/2}) dz \qquad (1)$$

where x is a vector of pre-service and in-service characteristics and B is the vector of coefficients of these characteristics. Estimating the B coefficients using maximum likelihood methods and evaluating the integral gives the estimated loss probability.

Probit model estimates of the effects of pre-service and service characteristics on four-year recruit survival probabilities need to be treated with some caution. Specifically, one cannot correctly add the probability changes (given in table 3) associated with more than one non-intercept probability. While in most cases that result will be close (within a percentage point), the proper procedure involves adding the relevant probit coefficients (given in appendix E) and then con-verting the sum, which represents an area under the standard normal density curve, into a probability (of four-year loss). Subtracting this estimate from 1.0 then yields the statistically correct estimate of four-year survival probability for the given recruit type of interest in a particular major rating/group.

C-1

For example, using the estimates in table 3 (for the CY 73 cohort) we may roughly calculate the survival probability of a 17 year old non-Caucasian who went to boot camp at Great Lakes (RTC 1) but was otherwise the intercept type. His estimated survival chance in the health care group would be approximately 63 percent. To properly calculate his survival chance, we refer to the detailed probit estimates for the health care group in appendix E (table E-12). Table E-12 indicates that the intercept coefficient is -.786, while the respective coefficients associated with being 17 years old, non-Caucasian, and from RTC 1 are .137, -.138, and .474. The sum of these four coefficients is -.313, which represents the "u" value in table C-1. When this sum is converted to its associated ϕ in table C-1, we arrive at a four-year loss estimate of .3783. Subtracting this loss probability from 1.0 yields a four-year survival probability estimate for this type of recruit of .622 (62.2 percent), a value close but not identical to the rough estimate of 63 percent.

TABLE C-1

THE CUMULATIVE STANDARDIZED
NORMAL DISTRIBUTION FUNCTION*

$$\Phi(u) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{u} e^{-\frac{x^2}{2}}\,dx \quad \text{FOR} \quad -4.99 \le u \le 0.00.$$

u	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
-.0	.5000	.4960	.4920	.4880	.4840	.4801	.4761	.4721	.4681	.4641
-.1	.4602	.4562	.4522	.4483	.4443	.4404	.4364	.4325	.4286	.4247
-.2	.4207	.4168	.4129	.4090	.4052	.4013	.3974	.3936	.3897	.3859
-.3	.3821	.3783	.3745	.3707	.3669	.3632	.3594	.3557	.3520	.3483
-.4	.3446	.3409	.3372	.3336	.3300	.3264	.3228	.3192	.3156	.3121
-.5	.3085	.3050	.3015	.2981	.2946	.2912	.2877	.2843	.2810	.2776
-.6	.2743	.2709	.2676	.2643	.2611	.2578	.2546	.2514	.2483	.2451
-.7	.2420	.2389	.2358	.2327	.2297	.2266	.2236	.2206	.2177	.2148
-.8	.2119	.2090	.2061	.2033	.2005	.1977	.1949	.1922	.1894	.1867
-.9	.1841	.1814	.1788	.1762	.1736	.1711	.1685	.1660	.1635	.1611
-1.0	.1587	.1562	.1539	.1515	.1492	.1469	.1446	.1423	.1401	.1379
-1.1	.1357	.1335	.1314	.1292	.1271	.1251	.1230	.1210	.1190	.1170
-1.2	.1151	.1131	.1112	.1093	.1075	.1056	.1038	.1020	.1003	$0^2 9853$
-1.3	$0^2 9680$	$0^2 9510$	$0^2 9342$	$0^2 9176$	$0^2 9012$	$0^2 8851$	$0^2 8691$	$0^2 8534$	$0^2 8379$	$0^2 8226$
-1.4	$0^2 8076$	$0^2 7927$	$0^2 7780$	$0^2 7636$	$0^2 7493$	$0^2 7353$	$0^2 7215$	$0^2 7078$	$0^2 6944$	$0^2 6811$
-1.5	$0^2 6681$	$0^2 6552$	$0^2 6426$	$0^2 6301$	$0^2 6178$	$0^2 6057$	$0^2 5938$	$0^2 5821$	$0^2 5705$	$0^2 5592$
-1.6	$0^2 5480$	$0^2 5370$	$0^2 5262$	$0^2 5155$	$0^2 5050$	$0^2 4947$	$0^2 4846$	$0^2 4746$	$0^2 4648$	$0^2 4551$
-1.7	$0^2 4457$	$0^2 4363$	$0^2 4272$	$0^2 4182$	$0^2 4093$	$0^2 4006$	$0^2 3920$	$0^2 3836$	$0^2 3754$	$0^2 3673$
-1.8	$0^2 3593$	$0^2 3515$	$0^2 3438$	$0^2 3362$	$0^2 3288$	$0^2 3216$	$0^2 3144$	$0^2 3074$	$0^2 3005$	$0^2 2938$
-1.9	$0^2 2872$	$0^2 2807$	$0^2 2743$	$0^2 2680$	$0^2 2619$	$0^2 2559$	$0^2 2500$	$0^2 2442$	$0^2 2385$	$0^2 2330$
-2.0	$0^2 2275$	$0^2 2222$	$0^2 2169$	$0^2 2118$	$0^2 2068$	$0^2 2018$	$0^2 1970$	$0^2 1923$	$0^2 1876$	$0^2 1831$
-2.1	$0^2 1786$	$0^2 1743$	$0^2 1700$	$0^2 1659$	$0^2 1618$	$0^2 1578$	$0^2 1539$	$0^2 1500$	$0^2 1463$	$0^2 1426$
-2.2	$0^2 1390$	$0^2 1355$	$0^2 1321$	$0^2 1287$	$0^2 1255$	$0^2 1222$	$0^2 1191$	$0^2 1160$	$0^2 1130$	$0^2 1101$
-2.3	$0^2 1072$	$0^2 1044$	$0^2 1017$	$0^3 9903$	$0^3 9642$	$0^3 9387$	$0^3 9137$	$0^3 8894$	$0^3 8656$	$0^3 8424$
-2.4	$0^3 8198$	$0^3 7976$	$0^3 7760$	$0^3 7549$	$0^3 7344$	$0^3 7143$	$0^3 6947$	$0^3 6756$	$0^3 6569$	$0^3 6387$
-2.5	$0^3 6210$	$0^3 6037$	$0^3 5868$	$0^3 5703$	$0^3 5543$	$0^3 5386$	$0^3 5234$	$0^3 5085$	$0^3 4940$	$0^3 4799$
-2.6	$0^3 4661$	$0^3 4527$	$0^3 4396$	$0^3 4269$	$0^3 4145$	$0^3 4025$	$0^3 3907$	$0^3 3793$	$0^3 3681$	$0^3 3573$
-2.7	$0^3 3467$	$0^3 3364$	$0^3 3264$	$0^3 3167$	$0^3 3072$	$0^3 2980$	$0^3 2890$	$0^3 2803$	$0^3 2718$	$0^3 2635$
-2.8	$0^3 2555$	$0^3 2477$	$0^3 2401$	$0^3 2327$	$0^3 2256$	$0^3 2186$	$0^3 2118$	$0^3 2052$	$0^3 1988$	$0^3 1926$
-2.9	$0^3 1866$	$0^3 1807$	$0^3 1750$	$0^3 1695$	$0^3 1641$	$0^3 1589$	$0^3 1538$	$0^3 1489$	$0^3 1441$	$0^3 1395$
-3.0	$0^3 1350$	$0^3 1306$	$0^3 1264$	$0^3 1223$	$0^3 1183$	$0^3 1144$	$0^3 1107$	$0^3 1070$	$0^3 1035$	$0^3 1001$
-3.1	$0^4 9676$	$0^4 9354$	$0^4 9043$	$0^4 8740$	$0^4 8447$	$0^4 8164$	$0^4 7888$	$0^4 7622$	$0^4 7364$	$0^4 7114$
-3.2	$0^4 6871$	$0^4 6637$	$0^4 6410$	$0^4 6190$	$0^4 5976$	$0^4 5770$	$0^4 5571$	$0^4 5377$	$0^4 5190$	$0^4 5009$
-3.3	$0^4 4834$	$0^4 4665$	$0^4 4501$	$0^4 4342$	$0^4 4189$	$0^4 4041$	$0^4 3897$	$0^4 3758$	$0^4 3624$	$0^4 3495$
-3.4	$0^4 3369$	$0^4 3248$	$0^4 3131$	$0^4 3018$	$0^4 2909$	$0^4 2803$	$0^4 2701$	$0^4 2602$	$0^4 2507$	$0^4 2415$
-3.5	$0^4 2326$	$0^4 2241$	$0^4 2158$	$0^4 2078$	$0^4 2001$	$0^4 1926$	$0^4 1854$	$0^4 1785$	$0^4 1718$	$0^4 1653$
-3.6	$0^4 1591$	$0^4 1531$	$0^4 1473$	$0^4 1417$	$0^4 1363$	$0^4 1311$	$0^4 1261$	$0^4 1213$	$0^4 1166$	$0^4 1121$
-3.7	$0^4 1078$	$0^4 1036$	$0^5 9961$	$0^5 9574$	$0^5 9201$	$0^5 8842$	$0^5 8496$	$0^5 8162$	$0^5 7841$	$0^5 7532$
-3.8	$0^5 7235$	$0^5 6948$	$0^5 6673$	$0^5 6407$	$0^5 6152$	$0^5 5906$	$0^5 5669$	$0^5 5442$	$0^5 5223$	$0^5 5012$
-3.9	$0^5 4810$	$0^5 4615$	$0^5 4427$	$0^5 4247$	$0^5 4074$	$0^5 3908$	$0^5 3747$	$0^5 3594$	$0^5 3446$	$0^5 3304$
-4.0	$0^5 3167$	$0^5 3036$	$0^5 2910$	$0^5 2789$	$0^5 2673$	$0^5 2561$	$0^5 2454$	$0^5 2351$	$0^5 2252$	$0^5 2157$
-4.1	$0^5 2066$	$0^5 1978$	$0^5 1894$	$0^5 1814$	$0^5 1737$	$0^5 1662$	$0^5 1591$	$0^5 1523$	$0^5 1458$	$0^5 1395$
-4.2	$0^5 1335$	$0^5 1277$	$0^5 1222$	$0^5 1168$	$0^5 1118$	$0^5 1069$	$0^5 1022$	$0^6 9774$	$0^6 9345$	$0^6 8934$
-4.3	$0^6 8540$	$0^6 8163$	$0^6 7801$	$0^6 7455$	$0^6 7124$	$0^6 6807$	$0^6 6503$	$0^6 6212$	$0^6 5934$	$0^6 5668$
-4.4	$0^6 5413$	$0^6 5169$	$0^6 4935$	$0^6 4712$	$0^6 4498$	$0^6 4294$	$0^6 4098$	$0^6 3911$	$0^6 3732$	$0^6 3561$
-4.5	$0^6 3398$	$0^6 3241$	$0^6 3092$	$0^6 2949$	$0^6 2813$	$0^6 2682$	$0^6 2558$	$0^6 2439$	$0^6 2325$	$0^6 2216$
-4.6	$0^6 2112$	$0^6 2013$	$0^6 1919$	$0^6 1828$	$0^6 1742$	$0^6 1660$	$0^6 1581$	$0^6 1506$	$0^6 1434$	$0^6 1366$
-4.7	$0^6 1301$	$0^6 1239$	$0^6 1179$	$0^6 1123$	$0^6 1069$	$0^6 1017$	$0^7 9680$	$0^7 9211$	$0^7 8765$	$0^7 8339$
-4.8	$0^7 7933$	$0^7 7547$	$0^7 7178$	$0^7 6827$	$0^7 6492$	$0^7 6173$	$0^7 5869$	$0^7 5580$	$0^7 5304$	$0^7 5042$
-4.9	$0^7 4792$	$0^7 4554$	$0^7 4327$	$0^7 4111$	$0^7 3906$	$0^7 3711$	$0^7 3525$	$0^7 3348$	$0^7 3179$	$0^7 3019$

Example: $\Phi(-3.57) = 0^3 1785 = 0.0001785$.

C-3

TABLE C-1 (Cont'd)

$$\Phi(u) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{u} e^{-\frac{x^2}{2}} dx \quad \text{for } 0.00 \leq u \leq 4.99.$$

u	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
.0	.5000	.5040	.5080	.5120	.5160	.5199	.5239	.5279	.5319	.5359
.1	.5398	.5438	.5478	.5517	.5557	.5596	.5636	.5675	.5714	.5753
.2	.5793	.5832	.5871	.5910	.5948	.5987	.6026	.6064	.6103	.6141
.3	.6179	.6217	.6255	.6293	.6331	.6368	.6406	.6443	.6480	.6517
.4	.6554	.6591	.6628	.6664	.6700	.6736	.6772	.6808	.6844	.6879
.5	.6915	.6950	.6985	.7019	.7054	.7088	.7123	.7157	.7190	.7224
.6	.7257	.7291	.7324	.7357	.7389	.7422	.7454	.7486	.7517	.7549
.7	.7580	.7611	.7642	.7673	.7703	.7734	.7764	.7794	.7823	.7852
.8	.7881	.7910	.7939	.7967	.7995	.8023	.8051	.8078	.8106	.8133
.9	.8159	.8186	.8212	.8238	.8264	.8289	.8315	.8340	.8365	.8389
1.0	.8413	.8438	.8461	.8485	.8508	.8531	.8554	.8577	.8599	.8621
1.1	.8643	.8665	.8686	.8708	.8729	.8749	.8770	.8790	.8810	.8830
1.2	.8849	.8869	.8888	.8907	.8925	.8944	.8962	.8980	.8997	.9.147
1.3	.90320	.90490	.90658	.90824	.90988	.91149	.91309	.91466	.91621	.91774
1.4	.91924	.92073	.92220	.92364	.92507	.92647	.92785	.92922	.93056	.93189
1.5	.93319	.93448	.93574	.93699	.93822	.93943	.94062	.94179	.94295	.94408
1.6	.94520	.94630	.94738	.94845	.94950	.95053	.95154	.95154	.95352	.95449
1.7	.95543	.95637	.95728	.95818	.95907	.95994	.96080	.96164	.96246	.96327
1.8	.96407	.96485	.96562	.96638	.96712	.96784	.96856	.96926	.96995	.97062
1.9	.97128	.97193	.97257	.97320	.97381	.97441	.97500	.97558	.97615	.97670
2.0	.97725	.97778	.97831	.97882	.97932	.97982	.98030	.98077	.98124	.98169
2.1	.98214	.98257	.98300	.98341	.98382	.98422	.98461	.98500	.98537	.98574
2.2	.98610	.98645	.98679	.98713	.98745	.98778	.98809	.98840	.98870	.98899
2.3	.98928	.98956	.98983	.9²0097	.9²0358	.9²0613	.9²0863	.9²1106	.9²1341	.9²1576
2.4	.9²1802	.9²2024	.9²2240	.9²2451	.9²2656	.9²2857	.9²3053	.9²3244	.9²3431	.9²3613
2.5	.9²3790	.9²3963	.9²4132	.9²4297	.9²4457	.9²4614	.9²4766	.9²4915	.9²5060	.9²5201
2.6	.9²5339	.9²5473	.9²5604	.9²5731	.9²5855	.9²5975	.9²6093	.9²6207	.9²6319	.9²6427
2.7	.9²6533	.9²6636	.9²6736	.9²6833	.9²6928	.9²7020	.9²7110	.9²7197	.9²7282	.9²7365
2.8	.9²7445	.9²7523	.9²7599	.9²7673	.9²7744	.9²7814	.9²7882	.9²7948	.9²8012	.9²8074
2.9	.9²8134	.9²8193	.9²8250	.9²8305	.9²8359	.9²8411	.9²8462	.9²8511	.9²8559	.9²8605
3.0	.9²8650	.9²8694	.9²8736	.9²8777	.9²8817	.9²8856	.9²8893	.9²8930	.9²8965	.9²8999
3.1	.9³0324	.9³0646	.9³0957	.9³1260	.9³1553	.9³1836	.9³2112	.9³2378	.9³2636	.9³2886
3.2	.9³3129	.9³3363	.9³3590	.9³3810	.9³4024	.9³4230	.9³4429	.9³4623	.9³4810	.9³4991
3.3	.9³5166	.9³5335	.9³5499	.9³5658	.9³5811	.9³5959	.9³6103	.9³6242	.9³6376	.9³6505
3.4	.9³6631	.9³6752	.9³6869	.9³6982	.9³7091	.9³7197	.9³7299	.9³7398	.9³7493	.9³7585
3.5	.9³7674	.9³7759	.9³7842	.9³7922	.9³7999	.9³8074	.9³8146	.9³8215	.9³8282	.9³8347
3.6	.9³8409	.9³8469	.9³8527	.9³8583	.9³8637	.9³8689	.9³8739	.9³8787	.9³8834	.9³8879
3.7	.9³8922	.9³8964	.9⁴0039	.9⁴0426	.9⁴0799	.9⁴1158	.9⁴1504	.9⁴1838	.9⁴2159	.9⁴2468
3.8	.9⁴2765	.9⁴3052	.9⁴3327	.9⁴3593	.9⁴3848	.9⁴4094	.9⁴4331	.9⁴4558	.9⁴4777	.9⁴4988
3.9	.9⁴5190	.9⁴5385	.9⁴5573	.9⁴5753	.9⁴5926	.9⁴6092	.9⁴6253	.9⁴6406	.9⁴6554	.9⁴6696
4.0	.9⁴6833	.9⁴6964	.9⁴7090	.9⁴7211	.9⁴7327	.9⁴7439	.9⁴7546	.9⁴7649	.9⁴7748	.9⁴7843
4.1	.9⁴7911	.9⁴8022	.9⁴8106	.9⁴8186	.9⁴8263	.9⁴8338	.9⁴8409	.9⁴8177	.9⁴8542	.9⁴8605
4.2	.9⁴8665	.9⁴8723	.9⁴8778	.9⁴8832	.9⁴8882	.9⁴8931	.9⁴8978	.9⁵0226	.9⁵0655	.9⁵1066
4.3	.9⁵1460	.9⁵1837	.9⁵2199	.9⁵2545	.9⁵2876	.9⁵3193	.9⁵3497	.9⁵3788	.9⁵4066	.9⁵4332
4.4	.9⁵4587	.9⁵4831	.9⁵5065	.9⁵5288	.9⁵5502	.9⁵5706	.9⁵5902	.9⁵6089	.9⁵6268	.9⁵6439
4.5	.9⁵6602	.9⁵6759	.9⁵6908	.9⁵7051	.9⁵7187	.9⁵7318	.9⁵7442	.9⁵7561	.9⁵7675	.9⁵7784
4.6	.9⁵7888	.9⁵7987	.9⁵8051	.9⁵8172	.9⁵8258	.9⁵8340	.9⁵8419	.9⁵8494	.9⁵8566	.9⁵8634
4.7	.9⁵8699	.9⁵8761	.9⁵8821	.9⁵8877	.9⁵8931	.9⁵8983	.9⁶0320	.9⁶0789	.9⁶1235	.9⁶1661
4.8	.9⁶2067	.9⁶2453	.9⁶2822	.9⁶3173	.9⁶3508	.9⁶3827	.9⁶4131	.9⁶4420	.9⁶4696	.9⁶4958
4.9	.9⁶5208	.9⁶5446	.9⁶5673	.9⁶5889	.9⁶6094	.9⁶6289	.9⁶6475	.9⁶6652	.9⁶6821	.9⁶6981

Example: $\Phi(3.57) = .9³6215 = 0.9998215$.

* Abridged from Table II of *Statistical Tables and Formulas* by A. Hald, John Wiley & Sons, New York, 1952.

APPENDIX D

DISTRIBUTION OF RECRUIT CHARACTERISTICS
IN MAJOR RATINGS/GROUPS

APPENDIX D

DISTRIBUTION OF RECRUIT CHARACTERISTICS
IN MAJOR RATINGS/GROUPS

This appendix gives the percentages of recruits having particular
background and in-service characteristics by rating group sample for
each cohort examined in these analyses. Rating group sample sizes (plus
four-year loss totals and percentages) are given here for reference.
See table 2 of the main text for most variable definitions; appendix A
provides the rest.

TABLE D-1

DISTRIBUTION OF RECRUIT CHARACTERISTICS IN
MAJOR RATINGS/GROUPS (In Percentage Points)

Characteristic	BT 73	BT 74	BT 76	MM 73	MM 74	MM 76	EM/IC 73	EM/IC 74	EM/IC 76
SAMPLE (N)	1729	2465	2192	2725	3573	3470	2142	2551	2396
LOSS4 (N)	821	1148	702	972	1152	764	615	502	361
LOSS4 %	48	46	32	36	32	22	29	20	15
PDEPS	5	7	6	6	8	7	5	8	7
RACE (NONWHITE)	5	6	6	3	4	5	5	7	6
AGE17	36	36	25	19	21	15	16	16	12
AGE18	37	32	36	44	38	43	44	39	38
AGE19	17	17	20	20	20	19	23	20	22
AGE20P	10	15	19	17	21	23	17	25	28
EDLT11	22	26	22	5	9	7	2	5	3
ED11	19	27	24	6	10	12	6	6	9
ED12	58	46	52	78	71	70	81	76	73
EDGT12	1	1	2	11	10	11	11	13	15
MG1+2	32	26	21	80	66	54	76	73	58
MG3U	40	36	19	13	18	14	17	17	15
MG3L4	28	38	60	7	16	32	7	10	27
6YO	—	—	—	57	43	43	40	45	48
D.E.P.	44	26	66	67	46	78	80	61	81
RTC 1	42	41	40	31	31	30	29	25	31
2	29	27	29	37	30	24	29	42	37
3	29	32	31	32	39	46	42	33	32
SURFACE COMBATANTS	59	61	54	37	39	37	25	18	20
CARRIERS	16	14	17	16	14	15	16	15	16
SUBMARINES	—	—	—	9	14	22	14	22	23
REPAIR	5	4	7	14	13	10	14	14	11
SEA BASED AIR	—	—	—	—	—	—	—	—	—
LAND BASED AIR	—	—	—	—	—	—	—	—	—
AMPHIBIOUS	10	11	12	11	9	8	10	10	11
AUXILIARY/PATROL	11	10	10	10	11	8	12	12	10
SEABEES	—	—	—	—	—	—	—	—	—
OTHER	—	—	—	3	—	—	9	9	9
SHORE	2	4	6	8	13	9	12	10	8
SEA	79	80	78	80	77	76	73	75	76
TOURED SEA	19	16	16	12	10	15	15	15	16
RATING	100 (BT)	100 (BT)	100 (BT)	100 (MM)	100 (MM)	100 (MM)	70 (EM) 30 (IC)	73 (EM) 27 (IC)	67 (EM) 33 (IC)

D-2

Characteristic	EN 73	EN 74	EN 76	HT 73	HT 74	HT 76	ET/FT 73	ET/FT 74	ET/FT 76
SAMPLE (N)	1030	1074	919	1381	1616	1800	2128	3519	3901
LOSS4 (N)	373	292	209	556	499	397	500	513	595
LOSS4 %	36	27	23	40	31	22	24	15	15
PDEPS	6	8	7	6	7	6	8	9	8
RACE (NONWHITE)	4	6	4	4	6	4	3	5	5
AGE17	20	22	20	25	27	17	16	15	11
AGE18	46	43	44	40	37	42	42	39	41
AGE19	21	20	20	22	20	20	21	20	18
AGE20P	13	15	16	13	16	21	21	26	30
EDLT11	6	12	10	10	15	9	1	2	3
ED11	5	12	17	9	16	16	1	3	9
ED12	84	74	71	81	67	75	83	80	72
EDGT12	5	2	2	--	2	—	15	15	16
MG1+2	59	43	29	44	32	28	93	89	76
MG3U	28	31	18	34	32	21	4	9	14
MG3L4	13	26	53	22	36	51	3	2	10
6YO	--	--	--	--	--	--	77	80	71
D.E.P.	72	60	80	69	54	83	68	57	82
RTC 1	39	34	39	38	33	39	30	27	30
2	21	38	28	22	38	31	32	31	22
3	40	28	33	40	29	30	38	42	48
SURFACE COMBATANTS	14	11	11	24	25	23	36	31	34
CARRIERS	5	5	6	14	15	14	6	7	7
SUBMARINES	1	—	—	—	—	—	15	25	15
REPAIR	18	19	21	27	28	34	6	8	10
SEA BASED AIR	--	--	--	--	--	--	--	--	--
LAND BASED AIR	--	--	--	--	--	--	--	--	--
AMPHIBIOUS	16	15	18	10	12	12	8	7	6
AUXILIARY/PATROL	12	13	14	12	12	11	6	7	5
SEABEES	1	—	—	—	—	—	--	—	--
OTHER	34	37	30	14	8	5	23	15	23
SHORE	33	36	29	19	18	15	20	15	24
SEA	46	46	54	63	60	65	65	69	65
TOURED SEA	21	18	17	18	22	20	15	16	11
RATING									
	100 (EN)	100 (EN)	100 (EN)	100 (HT)	100 (HT)	100 (HT)	67 (ET)	70 (ET)	68 (ET)
							33 (FT)	30 (FT)	32 (FT)

Characteristic	SENSOR			RM/CT			AVWEP		
	73	74	76	73	74	76	73	74	76
SAMPLE (N)	1045	968	1565	1646	2481	2588	2105	2339	2137
LOSS4 (N)	242	193	312	502	461	488	454	358	268
LOSS4 %	23	20	20	31	19	18	22	15	13
PDEPS	6	8	7	5	8	8	9	11	9
RACE (NONWHITE)	3	5	5	9	15	18	4	6	4
AGE17	16	15	15	21	21	13	15	15	12
AGE18	42	36	39	43	36	41	38	37	40
AGE19	20	20	19	21	21	20	22	20	18
AGE20P	22	29	27	15	22	26	25	28	30
EDLT11	2	2	4	5	7	3	3	3	4
ED11	3	4	10	8	12	11	4	5	11
ED12	80	78	74	77	71	75	76	79	72
EDGT12	15	16	12	10	10	11	17	13	13
MG1+2	91	83	66	51	40	32	87	83	64
MG3U	5	13	19	31	32	18	11	14	20
MG3L4	4	4	15	18	28	50	2	3	16
6YO	58	59	62	11	10	17	33	52	35
D.E.P.	68	56	82	61	42	81	68	55	86
RTC 1	20	22	27	32	35	36	22	16	31
2	36	39	32	28	35	27	49	29	30
3	44	39	41	40	30	37	29	55	39
SURFACE COMBATANTS	45	47	61	10	12	13	—	—	—
CARRIERS	4	3	3	7	6	8	5	8	10
SUBMARINES	27	28	24	3	7	5	—	—	—
REPAIR	—	—	—	3	2	4	—	—	—
SEA BASED AIR	—	—	—	—	—	—	44	52	47
LAND BASED AIR	—	—	—	1	—	—	30	22	24
AMPHIBIOUS	4	2	3	5	6	8	1	—	—
AUXILIARY/PATROL	1	2	3	5	4	5	—	—	—
SEABEES	—	—	—	1	—	—	—	—	—
OTHER	19	18	6	67	63	57	21	18	19
SHORE	16	17	6	65	61	57	35	27	33
SEA	67	65	77	26	33	37	55	64	60
TOURED SEA	17	18	17	9	6	6	10	9	7
RATING									
	64	69	80	66	59	68	49	62	54
	(ST)	(ST)	(ST)	(RM)	(RM)	(RM)	(AT)	(AT)	(AT)
	16	14	5	34	41	32	7	7	9
	(OT)	(OT)	(OT)	(CT)	(CT)	(CT)	(AX)	(AX)	(AX)
	20	17	15				17	13	16
	(EW)	(EW)	(EW)				(AW)	(AW)	(AW)
							16	9	12
							(AQ)	(AQ)	(AQ)
							11	9	9
							(AC)	(AC)	(AC)

Characteristic	AVM			AB/AS/PR			DT/HM		
	73	74	76	73	74	76	73	74	76
SAMPLE (N)	3512	5129	4966	1096	1400	1177	3445	2277	2893
LOSS4 (N)	1105	1203	725	433	472	229	1016	445	488
LOSS4 %	31	23	15	40	34	19	29	20	17
PDEPS	6	9	7	6	9	6	8	9	8
RACE (NONWHITE)	5	8	18	5	8	12	14	12	15
AGE17	26	25	14	33	28	17	16	14	9
AGE18	39	36	44	36	34	40	38	32	31
AGE19	21	20	21	18	18	21	22	21	19
AGE20P	14	19	21	13	20	22	24	33	41
EDLT11	9	13	6	19	18	10	3	3	3
ED11	11	16	14	17	20	19	7	6	8
ED12	76	68	75	61	59	67	72	72	65
EDGT12	4	3	5	3	3	4	18	19	24
MG1+2	51	42	20	39	32	22	41	45	46
MG3U	33	33	17	34	35	20	29	29	22
MG3L4	16	25	63	27	33	58	30	26	32
6YO	--	--	--	--	--	--	--	--	--
D.E.P.	53	42	84	50	36	79	76	60	81
RTC 1	26	29	38	45	36	35	38	26	34
2	32	37	27	35	19	25	19	37	25
3	42	34	35	20	45	40	43	37	41
SURFACE COMBATANTS	--	--	--	--	--	--	--	--	--
CARRIERS	5	10	10	49	51	46	3	--	--
SUBMARINES	--	--	--	--	--	--	--	--	--
REPAIR	--	--	--	--	--	--	4	--	--
SEA BASED AIR	54	54	47	10	10	12	2	--	--
LAND BASED AIR	27	21	25	10	6	8	--	--	--
AMPHIBIOUS	--	--	--	1	--	--	1	--	--
AUXILIARY/PATROL	--	--	--	--	--	--	1	--	--
SEABEES	--	--	--	--	--	--	--	--	--
OTHER	14	15	18	30	33	34	89	90	90
SHORE	45	40	48	40	34	33	87	78	61
SEA	49	53	46	54	60	60	7	18	27
TOURED SEA	6	7	6	6	6	7	6	4	12
RATING									
	36	45	43	63	76	64	76	93	89
	(AM)	(AM)	(AM)	(AB)	(AB)	(AB)	(HM)	(HM)	(HM)
	20	18	20	18	8	18	24	7	11
	(AE)	(AE)	(AE)	(AS)	(AS)	(AS)	(DT)	(DT)	(DT)
	29	24	21	19	16	18			
	(AD)	(AD)	(AD)	(PR)	(PR)	(PR)			
	15	13	16						
	(AO)	(AO)	(AO)						

Characteristic	LOG				ADMIN		
	73	74	76		73	74	76
SAMPLE (N)	2580	2917	3390		1569	1446	1566
LOSS4 (N)	1053	988	982		510	385	360
LOSS4 %	41	34	29		33	27	23
PDEPS	5	6	6		8	9	9
RACE (NONWHITE)	11	15	19		10	17	16
AGE17	25	24	17		15	15	13
AGE18	41	37	37		33	35	32
AGE19	18	18	20		21	20	17
AGE20P	16	21	26		31	30	38
EDLT11	11	13	12		4	5	4
ED11	12	16	16		6	8	10
ED12	70	65	63		66	70	66
EDGT12	7	6	9		24	17	20
MG1+2	27	27	21		56	49	39
MG3U	32	31	20		28	26	21
MG3L4	41	42	59		16	25	40
6YO	—	—	—		—	—	—
D.E.P.	66	42	68		70	55	79
RTC 1	39	40	42		27	32	35
2	23	29	23		40	27	24
3	38	31	35		33	41	41
SURFACE COMBATANTS	22	24	21		12	10	12
CARRIERS	10	16	17		10	14	13
SUBMARINES	7	8	7		3	4	3
REPAIR	7	8	10		4	6	5
SEA BASED AIR	7	5	5		14	15	18
LAND BASED AIR	3	2	2		9	7	8
AMPHIBIOUS	9	10	11		7	6	7
AUXILIARY/PATROL	11	11	10		5	5	4
SEABEES	2	2	2		1	1	1
OTHER	23	14	15		35	32	29
SHORE	24	19	19		39	37	39
SEA	63	65	67		49	52	53
TOURED SEA	13	16	14		12	11	8
RATING							
	54	53	49		57	45	39
	(MS)	(MS)	(MS)		(PN)	(PN)	(PN)
	11	6	7		2	5	8
	(AK)	(AK)	(AK)		(PC)	(PC)	(PC)
	9	6	4		19	28	27
	(DK)	(DK)	(DK)		(YN)	(YN)	(YN)
	2	19	17		10	11	15
	(SH)	(SH)	(SH)		(AZ)	(AZ)	(AZ)
	24	16	23		12	11	11
	(SK)	(SK)	(SK)		(AG)	(AG)	(AG)

Characteristic	SHPMT 74	SHPMT 76	ORD 74	ORD 76	CONST 74	CONST 76	OPS 74	OPS 76	MEDIA 74	MEDIA 76
SAMPLE (N)	539	483	1816	1998	1685	1202	1176	1443	290	275
LOSS4 (N)	156	102	616	430	457	353	416	312	49	43
LOSS4 %	30	21	34	21	27	29	35	22	16	15
PDEPS	9	8	7	7	9	9	4	6	9	4
RACE (NONWHITE)	5	7	4	11	3	5	10	10	5	10
AGE17	22	15	26	20	16	13	25	19	9	8
AGE18	38	39	38	37	43	42	37	35	37	40
AGE19	22	21	17	22	22	23	16	20	20	19
AGE20P	18	25	19	21	19	22	22	26	34	33
EDLT11	10	7	12	12	5	6	11	12	1	2
ED11	14	14	12	18	9	14	14	16	1	11
ED12	72	74	72	65	81	77	66	63	78	65
EDGT12	4	5	4	5	5	3	9	9	20	22
MG1+2	50	35	57	37	46	21	46	35	73	48
MG3U	31	22	29	21	30	20	30	20	17	24
MG3L4	19	43	14	52	24	59	24	45	10	28
6YO	--	--	--	--	--	--	--	--	—	—
D.E.P.	60	82	43	69	79	84	40	69	84	86
RTC 1	30	36	32	37	31	48	36	36	24	40
2	43	31	30	28	41	17	30	27	37	22
3	27	33	48	35	28	35	34	37	39	38
SURFACE COMBATANTS	NA	NA	NA	NA	—	—	38	41	NA	NA
CARRIERS	9	11	6	9	--	--	9	12	NA	NA
SUBMARINES	NA	NA	35	4	—	—	13	9	NA	NA
REPAIR	61	50	12	12	--	—	NA	NA	NA	NA
SEA BASED AIR	NA	NA	NA	NA	—	—	NA	NA	NA	NA
LAND BASED AIR	NA	NA	NA	NA	—	—	NA	NA	NA	NA
AMPHIBIOUS	5	8	3	7	—	—	18	19	NA	NA
AUXILIARY/PATROL	6	5	4	6	--	—	16	13	NA	NA
SEABEES	NA	NA	—	—	27	46	NA	NA	NA	NA
OTHER	19	26	40	62	73	54	6	6	100	100
SHORE	33	28	14	18	72	56	7	6	55	48
SEA	43	52	67	68	28	44	76	82	41	48
TOURED SEA	24	20	19	14	0	0	17	12	4	4

RATING

	SHPMT 74	SHPMT 76	ORD 74	ORD 76	CONST 74	CONST 76	OPS 74	OPS 76	MEDIA 74	MEDIA 76
	69 (MR)	75 (MR)	35 (TM)	27 (TM)	21 (EO)	22 (EO)	61 (QM)	51 (QM)	73 (PH)	75 (PH)
	6 (ML)	6 (ML)	4 (MN)	2 (MN)	2 (EA)	1 (EA)	1 (BM)	1 (BM)	1 (DM)	1 (DM)
	6 (PM)	4 (PM)	23 (MT)	1 (MT)	25 (BU)	25 (BU)	37 (SM)	47 (SM)	24 (JO)	23 (JO)
	9 (IM)	9 (IM)	38 (GM)	70 (GM)	13 (CE)	12 (CE)	1 (OS)	1 (OS)	2 (LI)	1 (LI)
	10 (DM)	6 (DM)			13 (CM)	16 (CM)				
					8 (SW)	9 (SW)				
					16 (UT)	15 (UT)				

APPENDIX E

DETAILED PROBIT ESTIMATES OF FOUR-YEAR
SURVIVAL RATES IN MAJOR RATINGS/GROUPS

APPENDIX E

DETAILED PROBIT ESTIMATES OF FOUR-YEAR
SURVIVAL RATES IN MAJOR RATINGS/GROUPS

The intercept probability (WP) in each of these tables indicates the four-year average <u>survival</u> chance of a recruit with an "intercept-type" profile. The survival probability changes (WP) for each other characteristic show the effects of substituting that characteristic in the intercept, others held constant. A t-value greater than 1.64 indicates that an effect is significant at least at the .10 level. The maximum likelihood estimates (MLEs) may be interpreted as described in appendix C.

TABLE E-1

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL PROBABILITY FOR BOILER TECHNICIANS

Characteristic	CY 73			CY 74			CY 76		
	MLE	|t|	ΔP	MLE	|t|	ΔP	MLE	|t|	ΔP
Intercept	-.143	1.44	.56	-.286	3.30	.61	-.518	4.87	.70
PDEPS	.373	2.54	-.15	.055	0.51	-.02	.199	1.71	-.07
RACE	.070	.50	-.03	-.028	0.26	.01	.069	.56	-.02
AGE17	.088	1.12	-.03	.194	2.86	-.08	.132	1.68	-.05
AGE18[a]									
AGE19	-.224	2.46	.09	-.167	2.13	.06	-.018	.22	.01
AGE20P	-.253	2.17	.10	-.104	1.22	.04	.095	1.10	-.03
EDLT11	.350	3.88	-.14	.297	4.05	-.12	.400	4.98	-.15
ED11	.310	3.59	-.12	.302	4.60	-.12	.418	5.84	-.16
ED12[a]									
EDGT12	-.486	1.49	.18	-.349	1.05	.12	-.074	.32	.03
MG1&2[a]									
MG3U	.130	1.76	-.05	.029	.44	-.01	-.064	.71	.02
MG3L4	.057	.70	-.02	.045	.67	-.02	-.025	.34	.01
D.E.P.	-.132	1.94	.05	-.265	4.30	.10	-.169	2.80	.06
6YO	NA	--	--	--	--	--	--	--	--
RTC1	.002	.03	-.00	.106	1.74	-.04	-.066	.97	.02
RTC2	.023	.28	-.01	.017	.25	-.01	.070	.96	-.02
RTC3[a]									
SURFACE COMBATANTS[a]									
CV	-.153	1.74	.06	.024	.31	-.01	-.081	1.01	.03
SUBMARINES	NA	--	--	--	--	--	--	--	--
REPAIR	-.006	.04	.00	.026	.19	-.01	-.211	1.72	.07
SEA-BASED AIR	NA	--	--	--	--	--	--	--	--
LAND-BASED AIR	NA	--	--	--	--	--	--	--	--
AMPHIBIOUS	-.029	.26	.01	.075	.88	-.03	-.063	.68	.02
AUXILIARY PATROL	-.073	.72	.03	.082	.91	-.03	-.071	.73	.02
OTHER	NA	--	--	--	--	--	--	--	--
SHORE	.134	.43	-.05	.335	2.35	-.13	.099	.81	-.04
SEA[a]									
TOURED SEA	-.154	1.90	.06	-.171	2.34	.06	-.248	3.03	.08
RATINGS: BT[a]									

[a] Intercept characteristic.

NA = Numbers of recruits in this category too small to estimate (see appendix D).

TABLE E-2

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL
PROBABILITY FOR MACHINISTS MATES

Characteristic	CY 73 MLE	CY 73 t	CY 73 ΔP	CY 74 MLE	CY 74 t	CY 74 ΔP	CY 76 MLE	CY 76 t	CY 76 ΔP
Intercept	-.179	2.16	.57	.264	3.37	-.60	-.411	4.34	.66
PDEPS	.015	.14	-.01	.142	1.64	.06	.178	1.82	-.07
RACE	-.062	.40	.02	-.193	1.51	.07	-.266	2.25	.09
AGE17	.141	1.99	-.06	.324	5.04	-.13	.013	.17	-.01
AGE18[a]									
AGE19	.045	.64	-.02	-.033	.51	.01	-.004	.05	.00
AGE20P	.000	.00	.00	.102	1.45	-.04	-.006	.08	.00
EDLT11	.100	1.06	-.04	.216	2.37	-.08	.523	5.33	-.20
ED11	.100	1.06	-.04	.268	3.24	-.11	.216	2.80	-.08
ED12[a]									
EDGT12	-.140	1.46	.05	-.158	1.75	.06	-.197	1.99	.07
MG1&2[a]									
MG3U	.078	.94	-.03	.067	.97	-.03	.026	.32	-.01
MG3L4	-.140	1.30	.05	.111	1.49	-.04	-.013	.19	.01
D.E.P.	-.210	3.67	.08	-.258	5.28	.09	-.243	4.09	.08
6YO	-.157	2.40	.06	-.230	3.58	.09	-.125	1.77	.04
RTC1	.038	.60	-.01	-.108	1.90	.04	-.071	1.17	.03
RTC2	.036	.59	-.01	-.083	1.49	.03	.139	2.24	-.05
RTC3[a]									
SURFACE COMBATANTS[a]									
CV	-.019	.25	.01	-.144	2.01	.05	-.248	3.28	.09
SUBMARINES	-.346	3.57	.13	-.592	7.57	.20	-.629	7.79	.19
REPAIR	-.122	1.05	.05	.030	.33	-.01	-.042	.48	.02
SEA-BASED AIR	NA	--	--	--	--	--	--	--	--
LAND-BASED AIR	NA	--	--	--	--	--	--	--	--
AMPHIBIOUS	.225	2.68	-.09	-.040	.49	.01	-.054	.58	.02
AUXILIARY PATROL	.074	.86	-.03	.210	2.81	-.08	.062	.70	-.02
OTHER	NA	--	--	--	--	--	--	--	--
SHORE	.114	.80	-.04	-.063	.66	.02	-.185	2.00	.07
SEA[a]									
TOURED SEA	-.081	.99	.03	-.171	2.17	.06	-.186	2.50	.07
RATINGS:									
MM[a]									

[a]Intercept characteristics.

NA = number of recruits in this category too small to estimate (see appendix D).

TABLE E-3

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL PROBABILITY
FOR ELECTRICIANS MATE/INTERIOR COMMUNICATION ELECTRICIAN

Characteristic	CY 73			CY 74			CY 76		
	MLE	|t|	ΔP	MLE	|t|	ΔP	MLE	|t|	ΔP
Intercept	-.430	3.83	.67	-.841	7.50	.80	-.619	4.61	.73
PDEPS	.166	1.18	-.06	.049	.45	-.01	.141	1.10	-.05
RACE	-.154	1.03	.05	.231	2.11	-.07	-.063	.47	.02
AGE17	.027	.30	-.01	.063	.69	-.02	.095	.89	-.03
AGE18[a]									
AGE19	.080	1.06	-.03	.082	1.00	-.02	.040	.46	-.01
AGE20P	-.009	.10	.00	.108	1.23	-.03	.026	.28	-.01
EDLT11	.354	1.46	-.14	.546	3.94	-.18	.287	1.69	-.10
ED11	-.024	.15	.01	.419	3.55	-.14	-.057	.48	.02
ED12[a]									
EDGT12	.094	.87	-.03	-.148	1.39	.04	-.155	1.41	.05
MG3U	-.106	1.26	.04	.008	.09	-.00	-.012	.12	.00
MG3L4	-.161	1.30	.06	.005	.04	-.00	-.081	.90	.03
D.E.P.	-.060	.79	.02	-.241	3.85	.06	-.219	2.71	.07
6YO	-.275	3.67	.09	.177	.62	-.01	-.218	2.48	.07
RTC1	.104	1.40	-.04	.041	.53	-.01	-.084	1.05	.03
RTC2	.122	1.70	-.05	.037	.52	-.01	.019	.24	-.01
RTC3[a]									
SURFACE COMBATANTS[a]									
CV	-.047	.52	.02	-.108	1.13	.03	-.102	1.01	.03
SUBMARINES	-.332	3.11	.11	-.478	5.08	.11	-.428	4.09	.12
REPAIR	-.028	.28	.01	.031	.30	-.01	-.028	.25	.01
SEA-BASED AIR	NA	--	--	--	--	--	--	--	--
LAND-BASED AIR	NA	--	--	--	--	--	--	--	--
AMPHIBIOUS	.025	.24	-.01	.192	1.84	-.06	.120	1.10	-.04
AUXILIARY PATROL	.020	.21	-.01	.018	.18	-.01	-.068	.60	.02
OTHER[a]									
SHORE	-.091	.84	.03	.024	.22	-.01	.261	2.23	-.09
SEA[a]									
TOURED SEA	.021	.24	-.01	-.144	1.57	.04	-.204	1.97	.06
RATINGS:									
IC	.014	.21	-.01	.047	2.63	-.05	-.078	1.11	.02
EM[a]									

[a]Intercept characteristics.

NA = Numbers of recruits in this category too small to estimate (see appendix D).

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL PROBABILITY
FOR ENGINEMEN

Characteristic	CY 73			CY 74			CY 76		
	MLE	t	ΔP	MLE	t	ΔP	MLE	t	ΔP
Intercept	-.148	1.17	.56	-.567	3.90	.71	-.232	1.26	.56
PDEPS	.071	.39	-.03	.071	.45	-.02	.083	.44	-.03
RACE	.010	.05	-.00	.002	.01	-.00	.068	.27	-.03
AGE17	.119	1.06	-.05	.275	2.34	-.10	-.014	.11	.01
AGE18[a]									
AGE19	.015	.14	-.01	.023	.19	-.01	-.055	.42	.02
AGE20P	-.153	1.08	.06	.017	.12	-.01	.044	.30	-.02
EDLT11	-.247	1.72	.09	.115	.74	-.04	.517	3.12	-.20
ED11	-.247	1.72	.09	.403	2.98	-.15	.122	.94	-.05
ED12[a]									
EDGT12	.064	.31	-.03	.095	.31	-.03	.126	.41	-.05
MG3U	.074	.78	.03	-.096	.95	.03	-.150	1.06	.06
MG3L4	.180	1.38	-.07	.055	.50	-.02	-.237	2.13	.09
D.E.P.	-.325	3.39	.12	-.199	1.99	.06	-.385	3.25	.14
6YO	NA	—	—	—	—	—	—	—	—
RTC1	.168	1.82	-.07	-.248	2.32	.08	-.321	2.81	.12
RTC2	.000	.00	.00	-.241	2.31	.08	-.069	.58	.03
RTC3[a]									
SURFACE COMBATANTS	.176	.98	-.07	.424	2.33	-.16	-.167	.85	.06
CV	.013	.05	-.00	.067	.27	-.02	.084	.37	-.03
SUBMARINES	NA	—	—	—	—	—	—	—	—
REPAIR	.077	.49	-.03	.287	1.91	-.10	-.202	1.23	.08
SEA-BASED AIR	NA	—	—	—	—	—	—	—	—
LAND-BASED AIR	NA	—	—	—	—	—	—	—	—
AMPHIBIOUS	.314	1.74	-.12	.430	2.50	-.16	-.199	1.08	.08
AUXILIARY PATROL	.156	.89	-.06	.240	1.42	-.09	-.259	1.38	.10
OTHER[a]									
SHORE[a]									
SEA	-.240	1.56	.09	-.069	.49	.02	.172	1.11	-.07
TOURED SEA	-.349	2.11	.13	-.375	2.23	.11	.062	.33	-.02
RATINGS:									
EN[a]									

[a]Intercept characteristics.

NA = Number of recruits in this category too small to estimate (see appendix D).

TABLE E-5

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL PROBABILITY FOR HULL TECHNICIANS

Characteristic	CY 73			CY 74			CY 76		
	MLE	|t|	ΔP	MLE	|t|	ΔP	MLE	|t|	ΔP
Intercept	-.587	3.77	.72	-.497	3.01	.69	-.907	4.94	.82
PDEPS	.212	1.37	-.07	.148	1.04	-.05	.261	1.89	-.08
RACE	0.104	.55	.03	.135	.99	-.05	-.238	1.28	.06
AGE17	.054	.58	-.02	.161	1.73	-.06	.199	2.01	-.06
AGE18[a]									
AGE19	-.025	.27	.01	-.023	.24	.01	-.049	.52	.01
AGE20P	-.145	1.24	.05	.014	.13	-.01	.069	.75	-.02
EDLT11	.233	1.83	-.08	.523	4.80	-.20	.389	3.34	-.12
ED11	.535	4.29	-.20	.359	3.75	-.14	.182	1.94	-.05
ED12[a]									
EDGT12				-.082	.30	.03			
MG3U	.018	.23	-.01	.192	2.25	-.07	.089	.89	-.02
MG3L	.046	.44	-.02	.140	1.50	-.05	.189	2.14	-.05
MG4	-.228	1.52	.07	.063	.52	-.02	.045	.43	-.01
D.E.P.	-.081	1.01	.03	-.350	4.93	.11	-.188	2.13	.05
6YO	NA	--	--	--	--	--	--	--	--
RTC1	.112	1.38	-.04	-.205	2.37	.07	.009	.11	-.00
RTC2	.177	1.86	-.06	-.103	1.24	.04	.096	1.12	-.03
RTC3[a]									
SURFACE COMBATANTS	.280	1.66	-.10	.263	1.51	-.09	.144	.75	-.04
CV	.235	1.31	-.08	.173	.94	-.06	-.055	.28	.01
SUBMARINES	NA	--	--	--	--	--	--	--	--
REPAIR	.243	1.63	-.08	-.049	.32	.02	-.046	.27	.01
SEA-BASED AIR	NA	--	--	--	--	--	--	--	--
LAND-BASED AIR	NA	--	--	--	--	--	--	--	--
AMPHIBIOUS	.302	1.59	-.11	.190	1.00	-.07	-.113	.56	.03
AUXILIARY PATROL	.280	1.62	-.10	.058	.32	-.02	.085	.44	-.02
OTHER[a]									
SHORE[a]									
SEA	.045	.37	-.02	-.142	1.10	.05	.108	.88	-.03
TOURED SEA	-.167	1.27	.05	-.191	1.49	.06	-.208	1.53	.05
RATINGS: HT[a]									

[a]Intercept characteristics.

NA = Numbers of recruits in this category too small to estimate (see appendix D).

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL PROBABILITY FOR WEAPONS CONTROL

Characteristic	CY 73			CY 74			CY 76		
	MLE	|t|	ΔP	MLE	|t|	ΔP	MLE	|t|	ΔP
Intercept	-.769	3.85	.78	-.748	4.41	.77	-.809	5.16	.79
PDEPS	-.099	.81	.03	.075	.80	-.02	.189	2.11	-.06
RACE	-.033	.18	.01	.155	1.32	-.05	.171	1.39	.05
AGE17	.018	.20	-.01	.271	3.38	-.09	.204	2.48	-.06
AGE18[a]									
AGE19	-.016	.19	.00	-.034	.43	.01	.049	.68	-.01
AGE20P	-.008	.08	.00	.039	.48	-.01	.048	.67	-.01
EDLT11	1.24	2.40	-.46	.068	.35	-.02	.498	3.97	-.17
ED11	.046	.18	-.01	.279	1.88	-.09	.230	2.70	-.07
ED12[a]									
EDGT12	-.087	.84	.02	.031	.36	-.01	.095	1.18	.03
MG3U	.052	.43	-.02	.090	.97	-.03	.089	1.25	-.03
MG3L4	.052	.43	-.02	-.267	1.35	.07	-.005	.06	.00
D.E.P.	-.155	2.36	.04	-.327	5.79	.09	-.130	2.02	.04
6YO	-.160	2.09	.04	-.214	3.04	.06	-.348	6.00	.09
RTC1	.119	1.55	-.04	-.149	2.22	.04	-.099	1.67	.03
RTC2	.279	3.79	-.09	-.151	2.33	.04	-.034	.52	.01
RTC3[a]									
SURFACE COMBATANTS	.293	1.58	-.10	.215	1.38	-.07	.154	1.08	-.05
CV	.238	1.12	-.06	.214	1.21	-.07	.150	.92	-.05
SUBMARINES	.167	.88	-.05	-.307	1.92	.08	-.213	1.38	.06
REPAIR	.221	1.32	-.07	-.015	.10	.01	.284	2.24	-.09
SEA-BASED AIR	NA	--	--	--	--	--	--	--	--
LAND-BASED AIR	NA	--	--	--	--	--	--	--	--
AMPHIBIOUS	.211	1.02	-.07	.190	1.06	.06	.442	2.72	-.15
AUXILIARY PATROL	.363	1.74	.12	.?44	1.39	-.08	.334	1.99	-.11
OTHER[a]									
SHORE	.024	.13	-.01	-.020	.13	.01	-.069	.52	.02
SEA[a]									
TOURED SEA	-.139	1.50	.04	-.069	.86	.02	-.267	2.93	.07
RATINGS:									
FT	-.120	1.61	.03	-.062	.93	.02	-.064	1.03	.02
ET[a]									

[a]Intercept characteristics.

NA = Numbers of recruits in this category too small to estimate (see appendix D).

TABLE E-7

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL
PROBABILITY FOR SENSORS

Characteristic	CY 73			CY 74			CY 76		
	MLE	|t|	ΔP	MLE	|t|	ΔP	MLE	|t|	ΔP
Intercept	-.954	3.03	.83	-.543	2.07	.71	-.048	.18	.52
PDEPS	-.192	.94	.04	.051	.26	-.02	-.028	.19	.01
RACE	-.166	.63	.04	.036	.16	-.01	-.220	1.24	.09
AGE17	.165	1.25	-.04	.177	1.17	-.06	.259	2.29	-.10
AGE18[a]									
AGE19	.110	.90	-.03	.071	.52	-.02	.053	.49	-.02
AGE20P	.083	.58	-.02	.055	.38	-.02	.074	.68	-.03
EDLT11	-.205	.96	.05	.149	.49	.05	.321	1.83	-.13
ED11	-.205	.96	.05	.571	2.39	-.22	.276	2.32	-.11
ED12[a]									
EDGT12	-.208	1.33	.05	.054	.36	-.02	.225	1.80	-.09
MG3U	-.045	.29	.01	-.123	.81	.04	.038	.38	-.02
MG3L4	-.045	.29	.01	.298	1.23	-.11	.225	2.13	-.09
D.E.P.	-.364	3.69	.08	-.405	3.94	.12	-.235	2.43	.09
6YO	-.183	1.66	.04	-.120	1.02	.04	-.084	1.01	.03
RTC1	.278	2.20	-.08	.169	1.32	-.06	-.136	1.45	.05
RTC2	.212	2.05	-.06	.114	1.02	-.04	-.128	1.43	.05
RTC3[a]									
SURFACE COMBATANTS	.949	1.32	-.33	.650	1.19	-.25	-.377	.99	.14
CV	.939	1.25	-.32	1.32	2.20	-.658	1.43	.24	
SUBMARINES	.986	1.37	-.34	.437	.79	-.16	-.675	1.74	.25
REPAIR	NA	--	--	--	--	--	--	--	--
SEA-BASED AIR	NA	--	--	--	--	--	--	--	--
LAND-BASED AIR	NA	--	--	--	--	--	--	--	--
AMPHIBIOUS	.618	.82	-.20	.960	1.53	-.37	-.356	.80	.14
AUXILIARY PATROL	.618	.82	-.20	1.48	2.41	-.53	.075	.18	-.03
OTHER[a]									
SHORE[a]									
SEA	-.536	.74	.10	-.796	1.40	.20	-.187	.50	.07
TOURED SEA	-.520	.72	.01	-.815	1.41	.21	-.197	.51	.08
RATINGS:									
EW	.183	1.29	-.05	-.248	1.68	.08	-.297	.12	
DT	.454	1.63	-.14	-.224	.90	.07	-.692	2.71	.25
ST[a]									

[a]Intercept characteristics.

NA = Numbers of recruits in this category too small to estimate (see appendix D).

TABLE E-8

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL
PROBABILITY FOR RADIOMEN/COMMUNICATION TECHNICIANS

Characteristic	CY 73			CY 74			CY 76		
	MLE	|t|	ΔP	MLE	|t|	ΔP	MLE	|t|	ΔP
Intercept	-.524	5.25	.701	-1.05	9.42	.85	-.808	6.81	.79
PDEPS	-.048	.31	.02	-.159	1.25	.03	.153	1.41	-.05
RACE	-.046	.37	.02	.218	2.56	-.06	.029	.37	-.01
AGE17	.026	.27	-.01	.044	.50	-.01	.176	1.92	-.05
AGE1 $_a$									
AGE19	.022	.24	-.01	-.059	.66	.01	.044	.54	-.01
AGE20P	-.80	.67	.03	.095	1.01	-.02	.075	.88	-.02
EDLT11	.227	1.45	-.08	.360	3.03	-.10	.277	1.85	-.09
ED11	.181	1.46	-.07	.441	4.65	-.12	.259	2.86	-.08
ED12[a]									
EDGT12	.037	.27	-.01	-.019	.15	.00	.226	2.18	-.07
MG3U	.081	1.01	-.03	.068	.87	-.02	.046	.50	-.01
MG3L4	.050	.50	-.02	.045	.53	-.01	.106	1.35	-.03
D.E.P.	-.084	1.18	.03	-.132	1.92	.03	-.188	2.58	.05
6YO	-.578	4.19	.16	-.233	1.63	.05	-.374	3.73	.09
RTC1	.025	.31	-.01	-.114	1.48	.02	-.071	1.03	.02
RTC2	.094	1.13	-.03	.000	.00	-.00	-.128	1.68	.04
RTC3[a]									
SURFACE COMBATANTS	.306	1.42	-.11	.507	2.70	-.15	.283	1.50	-.09
CV	-.024	.10	.01	.342	1.67	-.09	.197	.98	-.06
SUBMARINES	.122	.47	-.04	.239	1.16	-.06	-.051	.21	.01
REPAIR	.204	.85	.07	.466	2.11	-.13	.024	.12	-.01
SEA-BASED AIR	NA	--	--	--	--	--	--	--	--
LAND-BASED AIR	NA	--	--	--	--	--	--	--	--
AMPHIBIOUS	.369	1.49	-.138	.332	1.60	-.09	.337	1.70	-.11
AUXILIARY PATROL	.244	1.03	-.09	.614	2.92	-.18	.019	.08	0.01
OTHER[a]									
SHORE[a]									
SEA	.011	.05	-.00	.022	.12	-.00	-.100	.56	.03
TOURED SEA	-.124	.64	.04	-.219	1.12	.04	-.548	2.58	.12
RATINGS:									
CT	-.043	.49	.01	-.266	3.22	.05	-.157	2.09	.04
RM[a]									

[a] Intercept characteristics.

NA = Numbers of recruits in this category too small to estimate (see Appendix D).

TABLE E-9

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL PROBABILITY FOR AVIATION WEAPONS

Characteristic	CY 73			CY 74			CY 76		
	MLE	|t|	ΔP	MLE	|t|	ΔP	MLE	|t|	ΔP
Intercept	-.716	6.41	.76	-.938	6.40	.83	-1.27	7.61	.90
PDEPS	-.076	.64	.02	-.140	1.26	.03	.116	.94	-.02
RACE	.092	.55	-.03	.216	1.59	-.06	.004	.02	-.00
AGE17	.010	1.03	-.03	.144	1.41	-.04	.013	.11	-.00
AGE18[a]									
AGE19	-.031	.36	.01	-.107	1.10	.03	-.086	.81	.01
AGE20P	-.047	.48	.01	.086	.91	-.02	.075	.75	-.01
EDLT11	.036	.28	-.01	.502	2.75	-.16	.701	4.21	-.18
ED11	.036	.28	-.01	.302	2.18	-.09	.094	.83	-.02
ED12[a]									
EDGT12	-.117	1.16	.03	-.121	1.07	.03	.051	.44	-.01
MG3U	-.034	.34	.01	.038	.41	-.01	-.112	1.18	.02
MG3L4	-.057	.27	.02	-.062	.35	.02	.049	.49	-.01
D.E.P.	-.287	4.19	.08	-.346	5.02	.07	.000	.00	-.00
6YO	-.240	3.02	.07	-.063	.76	.02	-.178	2.10	.03
RTC1	.336	3.76	-.12	.000	.00	-.00	-.137	1.58	.02
RTC2	.266	3.45	-.09	.011	.14	-.00	-.115	1.33	.02
RTC3[a]									
SURFACE COMBATANTS	NA	—	—	—	—	—	—	—	—
CV	.009	.06	-.00	.471	4.06	-.14	.409	3.64	-.09
SUBMARINES	NA	—	—	—	—	—	—	—	—
REPAIR	NA	—	—	—	—	—	—	—	—
SEA-BASED AIR[a]									
LAND-BASED AIR	.060	.76	-.02	.019	.20	-.01	.028	.27	-.01
AMPHIBIOUS	NA	—	—	—	—	—	—	—	—
AUXILIARY PATROL	NA	—	—	—	—	—	—	—	—
OTHER	-.218	.76	.06	-.253	1.64	.06	.160	1.05	-.03
SHORE[a]									
SEA	-.018	.23	.01	-.068	.58	.02	.179	1.50	-.04
TOURED SEA	-.388	2.99	.10	-.390	2.42	.08	.042	.24	-.01
RATINGS:									
AX	.022	.18	-.01	.514	4.32	-.16	.080	.65	-.02
AW	.159	1.59	-.05	.241	2.17	-.07	-.032	.29	.01
AQ	-.044	.47	.01	.367	3.24	-.11	.092	.82	-.02
AC	.134	1.14	-.04	.135	.93	-.04	-.187	1.25	.03
AT[a]									

[a] Intercept characteristics.

NA = Numbers of recruits in this category too small to estimate (see Appendix D).

TABLE E-10

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL PROBABILITY OF AVIATION MAINTENANCE

Characteristic	CY 73			CY 74			CY 76		
	MLE	|t|	ΔP	MLE	|t|	ΔP	MLE	|t|	ΔP
Intercept	-.619	6.71	.73	-.905	11.03	.82	-1.06	10.38	.86
PDEPS	.049	.52	-.02	.055	.79	-.02	.017	.18	-.00
RACE	.200	1.95	-.07	.003	.03	-.00	-.006	.09	.00
AGE17	.160	2.68	-.05	.209	3.79	-.06	.240	3.60	-.06
AGE18[a]									
AGE19	-.087	1.41	.03	.028	.48	-.01	.013	.21	-.00
AGE20P	-.011	.14	.00	.027	.42	-.01	.125	1.92	-.03
EDLT11	.199	2.32	-.07	.463	7.19	-.15	.473	5.54	-.13
ED11	.180	2.46	-.06	.290	5.13	-.09	.212	3.35	-.05
ED12[a]									
EDGT12	-.265	2.06	.08	.096	.80	-.03	.030	.28	-.01
MG3U	-.094	1.86	.03	.047	.98	-.01	.118	1.60	-.03
MG3L4	-.159	2.33	.05	.065	1.24	-.02	.007	.11	-.00
D.E.P.	-.158	3.31	.05	-.359	7.92	.08	-.145	2.43	.03
6YO	NA	--	--	--	--	--	--	--	--
RTC1	.119	2.10	-.04	-.060	1.19	.02	-.068	1.31	.01
RTC2	.1~)	2.03	-.04	-.114	2.36	.03	-.098	1.72	.02
RTC3[a]									
SURFACE COMBATANTS	NA	--	--	--	--	--	--	--	--
CV	.304	2.30	-.11	.521	5.59	-.17	.133	1.37	-.03
SUBMARINES	NA	--	--	--	--	--	--	--	--
REPAIR	NA	--	--	--	--	--	--	--	--
SEA-BASED AIR	.146	1.84	-.05	-.015	.22	.00	-.017	.25	.00
LAND-BASED AIR	.056	.72	-.02	-.157	2.25	.04	-.111	1.58	.02
AMPHIBIOUS	NA	--	--	--	--	--	--	--	--
AUXILIARY PATROL	NA	--	--	--	--	--	--	--	--
OTHER[a]									
SHORE[a]									
SEA	.036	.64	-.01	.029	.54	-.01	.018	.31	-.00
TOURED SEA	-.137	1.30	.04	-.385	4.02	.08	-.101	.99	.02
RATINGS:									
AE	-.164	2.53	.05	.228	4.04	-.07	.003	.05	-.00
AD	.142	2.49	-.05	.245	4.71	-.07	.030	.49	-.01
AO	.040	.54	-.01	.173	2.69	-.05	.136	2.08	-.03
AM[a]									

[a] Intercept characteristics.

NA = Numbers of recruits in this category too small to estimate (see appendix D).

TABLE E-11

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL
PROBABILITY FOR AVIATION GROUND SUPPORT

Characteristic	CY 73			CY 74			CY 76		
	MLE	|t|	ΔP	MLE	|t|	ΔP	MLE	|t|	ΔP
Intercept	-.247	1.67	.60	-.853	6.72	.80	-1.12	5.90	.87
PDEPS	.377	2.24	-.15	-.158	1.15	.04	.483	2.72	-.13
RACE	-.151	.78	.06	.060	.44	-.02	-.213	1.41	.04
AGE17	.72	.69	-.03	.154	1.56	-.05	.172	1.35	.04
AGE18[a]									
AGE19	-.114	.99	.04	-.090	.83	.02	.095	.80	-.02
AGE20P	-.139	1.01	.05	.096	.86	-.03	.025	.19	-.01
EDLT11	.057	.47	-.02	.441	4.01	-.14	.516	3.59	-.14
ED11	.249	2.15	-.10	.323	3.29	-.10	.272	2.40	-.07
ED12[a]									
EDGT12	-.052	.21	.02	-.216	.88	.05	.213	.96	-.05
MG3U	-.047	.49	.02	.031	.34	-.01	.007	.06	-.00
MG3L	.040	.36	-.02	-.014	.14	.00	.062	.49	-.01
MG4	-.186	1.08	.07	-.143	1.04	.04	.010	.08	-.00
D.E.P.	-.327	3.70	.12	-.172	2.08	.04	.045	.41	-.01
6YO	NA	--	--	--	--	--	--	--	--
RTC1	.074	.67	-.03	.076	.95	-.02	-.167	1.66	.03
RTC2	.002	.02	-.00	-.118	1.12	.03	-.343	3.00	.06
RTC3[a]									
SURFACE COMBATANTS	NA	--	--	--	--	--	--	--	--
CV	-.065	.32	.02	.328	2.40	-.10	.042	.31	-.01
SUBMARINES	NA	--	--	--	--	--	--	--	--
REPAIR	NA	--	--	--	--	--	--	--	--
SEA-BASED AIR	-.066	.29	.03	.112	.57	-.03	-.046	.25	.01
LAND-BASED AIR	.009	.05	-.00	-.077	.40	.02	-.306	1.56	.05
AMPHIBIOUS	NA	--	--	--	--	--	--	--	--
AUXILIARY PATROL	NA	--	--	--	--	--	--	--	--
OTHER[a]									
SHORE[a]									
SEA	.276	1.47	-.11	.249	1.83	-.07	.229	1.68	-.05
TOURED SEA	.040	.18	-.02	-.153	.79	.04	.000	.00	-.00
RATINGS:									
AS	-.222	1.82	.08	-.092	.63	.02	-.076	.58	.02
PR	-.045	.27	.02	-.178	1.13	.05	.137	.88	-.03
AB[a]									

[a] Intercept characteristics.

NA = Numbers of recruits in this category too small to estimate (see appendix D).

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL
PROBABILITY FOR DENTAL TECHNICIANS AND HOSPITALMEN

Characteristic	CY 73			CY 74			CY 76		
	MLE	|t|	ΔP	MLE	|t|	ΔP	MLE	|t|	ΔP
Intercept	-.786	7.92	.78	-.659	6.17	.75	-1.078	10.28	.86
PDEPS	-.066	.75	.02	-.038	.35	.01	-.008	.08	.00
RACE	-.138	1.87	.04	-.061	.61	.02	-.053	.65	.01
AGE17	.137	1.95	-.04	.003	.03	-.00	.363	3.52	-.10
AGE18[a]									
AGE19	.071	1.13	-.02	.108	1.24	-.04	.167	1.99	-.04
AGE20P	-.005	.07	.00	.015	.17	-.01	.154	1.98	-.04
EDLT11	.247	3.06	-.08	.700	4.19	-.26	.283	1.76	-.07
ED11	.247	3.06	-.08	.259	2.09	-.09	.002	.02	-.00
ED12[a]									
EDGT12	-.031	.42	.01	-.156	1.64	.05	.012	.16	-.00
MG3U	-.008	.13	.00	.100	1.39	-.03	.058	.79	-.01
MG3L	.033	.49	-.01	.027	.27	-.01	.093	1.30	-.02
MG4	-.055	.59	.02	-.240	1.40	.07	.086	.72	-.02
D.E.P.	-.076	1.33	.02	-.419	6.47	.11	-.138	1.95	.03
6YO	NA	--	--	--	--	--	--	--	--
RTC1	.474	8.95	-.16	.206	2.61	-.07	-.026	.40	.00
RTC2	.312	4.89	-.10	.134	1.82	-.05	.007	.11	-.00
RTC3[a]									
SURFACE COMBATANTS	NA	--	--	--	--	--	--	--	--
CV	NA	--	--	--	--	--	--	--	--
SUBMARINES	NA	--	--	--	--	--	--	--	--
REPAIR	NA	--	--	--	--	--	--	--	--
SEA-BASED AIR	NA	--	--	--	--	--	--	--	--
LAND-BASED AIR	NA	--	--	--	--	--	--	--	--
AMPHIBIOUS	NA	--	--	--	--	--	--	--	--
AUXILIARY PATROL	NA	--	--	--	--	--	--	--	--
OTHER[a]									
SHORE	-.045	.60	.01	-.172	2.37	.05	.086	1.49	-.02
SEA*									
TOURED SEA[a]									
RATINGS:									
DT	.232	3.97	-.07	-.050	.40	.02	.019	.20	-.00
HM[a]									

[a] Intercept characteristics.

NA = Numbers of recruits in this category too small to estimate (see appendix D).

TABLE E-13

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL PROBABILITY FOR LOGISTICS

Characteristic	CY 73			CY 74			CY 76		
	MLE	|t|	ΔP	MLE	|t|	ΔP	MLE	|t|	ΔP
Intercept	-.213	1.63	.58	-.470	3.31	.68	-.421	3.25	.66
PDEPS	.192	1.56	-.08	.140	1.32	-.05	.016	.16	-.01
RACE	-.071	.80	.03	.017	.24	-.01	-.158	2.43	.06
AGE17	.123	1.76	-.05	.067	.95	-.02	.248	3.56	-.09
AGE18[a]									
AGE19	-.202	2.75	.08	.078	1.09	-.03	.022	.32	-.01
AGE20P	-.170	1.96	.06	-.052	.67	.02	.154	2.31	-.06
EDLT11	.278	2.89	-.11	.624	7.38	-.24	.524	6.91	-.20
ED11	.168	2.01	-.07	.417	5.93	-.16	.286	4.36	-.11
ED12[a]									
EDGT12	-.021	.18	.01	-.239	1.98	.08	-.264	2.66	.09
MG3U	.008	.12	-.00	-.079	1.16	.03	-.031	.42	.01
MG3L	.079	1.05	-.03	-.015	.21	.01	-.041	.63	.01
MG4	.021	.23	-.01	-.078	.93	.03	-.082	1.07	.03
D.E.P.	-.203	3.41	.08	-.343	6.28	.11	-.336	6.55	.11
6YO	NA	--	--	--	--	--	--	--	--
RTC1	.123	2.02	-.05	.120	1.99	-.04	-.046	.85	.02
RTC2	.092	1.32	-.04	.062	.93	-.02	-.082	1.28	.03
RTC3[a]									
SURFACE COMBATANTS	.263	2.33	-.10	.075	.60	-.03	.145	1.28	-.05
CV	.109	.87	-.04	-.113	.85	.04	.049	.43	-.02
SUBMARINES	.009	.06	-.00	0.006	.04	.00	-.172	1.27	.06
REPAIR	.164	1.35	-.06	.095	.76	-.03	.007	.06	-.00
SEA-BASED AIR	-.065	.48	.03	-.292	1.76	.10	.020	.14	-.00
LAND-BASED AIR	NA	--	--	--	--	--	--	--	--
AMPHIBIOUS	.232	1.76	-.09	.067	.48	-.02	.087	.70	-.03
AUXILIARY PATROL	.200	1.62	-.08	-.040	.29	.01	.089	.73	-.03
OTHER[a]									
SHORE	-.026	.24	.01	-.101	.83	.04	.075	.72	-.03
SEA[a]									
TOURED SEA	-.285	3.44	.11	-.048	.64	.02	-.239	3.12	.08
RATINGS:									
AK	-.079	.82	.03	-.011	.09	.00	-.199	1.86	.07
DK	-.223	2.13	.08	-.306	2.37	.10	-.158	1.18	.06
SH	-.393	1.79	.14	.222	3.24	-.08	.014	.21	-.01
SK	-.214	3.20	.08	-.096	1.27	.03	-.055	.86	.02
MS[a]									

[a]Intercept characteristics.

NA = Numbers of recruits in this category too small to estimate (see appendix D).

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL
PROBABILITY FOR ADMINISTRATION

Characteristic	CY 73			CY 74			CY 76		
	MLE	|t|	ΔP	MLE	|t|	ΔP	MLE	|t|	ΔP
Intercept	-.408	3.34	.66	-.697	5.25	.76	-.552	3.79	.71
PDEPS	-.092	.69	.03	-.304	2.11	.08	.339	2.76	-.13
RACE	.041	.34	-.02	.020	.19	-.01	-.073	.72	.02
AGE17	.073	.67	-.03	.097	.08	-.00	.130	1.04	-.05
AGE18[a]									
AGE19	-.112	1.18	.04	-.028	.26	.01	.057	.52	-.02
AGE20P	.010	.09	-.00	.027	.24	-.01	.090	.87	-.03
EDLT11	.096	.79	-.04	.430	2.50	-.15	.471	2.52	-.18
ED11	.096	.79	-.04	.331	2.44	-.11	.180	1.50	-.06
ED12[a]									
EDGT12	-.160	1.61	.06	-.121	1.02	.04	.075	.70	-.03
MG30	-.096	1.19	.03	-.065	.69	.02	-.079	.80	.03
MG3L4	-.196	1.87	.07	.118	1.17	-.04	-.042	.48	.01
D.E.P.	-.067	.88	.02	-.046	5.82	.11	-.171	1.92	.06
6YO	NA	—	—	—	—	—	—	—	—
RTC1	.123	1.39	-.05	-.008	.09	.00	-.268	3.21	.08
RTC2	.081	1.00	-.03	.059	.62	-.02	-.251	2.68	.08
RTC3[a]									
SURFACE COMBATANTS	.233	1.55	-.09	.176	1.22	-.06	-.149	.88	.05
CV	.200	1.26	-.08	-.122	.93	.04	-.183	1.09	.06
SUBMARINES	.084	.40	-.03	.027	.13	-.01	.020	.08	-.01
REPAIR	.161	.88	-.08	.236	1.38	-.08	-.196	.99	.06
SEA-BASED AIR	.005	.04	-.00	-.031	.19	.01	-.089	.62	.03
LAND-BASED AIR	.016	.11	-.01	-.031	.19	.01	.099	.64	-.04
AMPHIBIOUS	.269	1.55	-.10	.395	2.33	-.14	-.201	1.07	.06
AUXILIARY PATROL	.202	1.10	-.08	.238	1.39	-.08	-.073	.33	.02
OTHER[a]									
SHORE[a]									
SEA	.021	.18	-.01	.220	2.08	-.07	.125	.98	-.04
TOURED SEA	-.172	1.21	.06	.037	2.58	-.01	.022	.13	-.01
RATINGS:									
PC	.061	.28	-.02	.122	1.41	-.08	.433	3.25	-.16
YN	.000	.00	.00	.170	1.85	-.06	-.024	.26	.01
AZ	-.217	1.66	.08	.033	.24	-.01	-.104	.85	.03
AG	-.285	2.38	.10	.119	.88	-.04	-.286	1.99	.09
PN[a]									

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[a]Intercept characteristics.

NA = Numbers of recruits in this category too small to estimate (see appendix D).

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL PROBABILITY FOR SHIP MAINTENANCE GROUP

Characteristic	CY 74			CY 76		
	MLE	|t|	ΔP	MLE	|t|	ΔP
Intercept	-.204	.88	.58	-.645	2.24	.74
PDEPS	-.254	1.10	.10	.157	.63	-.05
RACE	.063	.22	-.02	-.416	1.31	.12
AGE17	-.112	.66	.04	.612	2.82	-.23
AGE18[a]						
AGE19	-.124	.76	.05	.398	2.21	-.14
AGE20P	-.297	1.53	.11	.213	1.10	-.07
EDLT11	.701	3.16	-.27	.119	.44	-.04
ED11	.163	.86	-.06	-.591	2.50	.15
ED12[a]						
EDGT12	-2.20	1.70	.41	-.660	1.65	.16
MG3U	.113	.80	-.04	-.005	.03	.00
MG3L4	.263	1.59	-.10	-.227	1.39	.07
D.E.P.	-.171	1.27	.07	-.357	1.91	.10
6YO	NA	—	—	—	—	—
RTC1	-.129	.80	.05	-.100	.64	.03
RTC2	.58	.39	-.01	-.341	1.93	.10
RTC3[a]						
SURFACE COMBATANTS[a]						
CV	-.254	.99	.10	.126	.46	-.04
SUBMARINES	NA	—	—	—	—	—
REPAIR	-.094	.60	.04	.012	.07	-.00
SEA-BASED AIR	NA	—	—	—	—	—
LAND-BASED AIR	NA	—	—	—	—	—
AMPHIBIOUS	-.456	1.47	.16	.365	1.28	-.13
AUXILIARY PATROL	.292	1.05	-.12	.152	.42	-.05
OTHER[a]						
SHORE	-.270	1.73	.10	.234	1.27	-.08
SEA[a]						
TOURED SEA	-.424	2.48	.15	.125	.65	-.04

RATINGS:
    MR[a]
    ML[a]
    PM[a]
    IM[a]
    OM[a]

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[a] Intercept characteristics.

NA = Numbers of recruits in this category too small to estimate (see appendix D).

TABLE E-16

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL
PROBABILITY FOR ORDNANCE GROUP

Characteristic	CY 74			CY 76		
	MLE	|t|	ΔP	MLE	|t|	ΔP
Intercept	-.574	5.69	.72	-.529	4.82	.70
PDEPS	.070	.54	-.02	.076	.60	-.03
RACE	.192	1.27	-.07	.023	.22	-.01
AGE17	.115	1.35	-.04	.231	2.47	-.08
AGE18[a]						
AGE19	.049	.52	-.02	.035	.38	-.01
AGE20P	.069	.71	-.02	.029	.29	-.01
EDLT11	.496	4.51	-.19	.386	3.71	-.14
ED11	.284	2.82	-.10	.099	1.10	-.04
ED12[a]						
EDGT12	.151	.94	-.05	-.215	1.22	.07
MG3U	.042	.58	-.01	.069	.74	-.02
MG3L4	.129	1.34	-.05	-.079	.97	.03
D.E.P.	-.176	2.56	.06	-.293	4.22	.09
6YO	NA	---	---	---	---	---
RTC1	-.006	.07	.00	-.221	2.88	.07
RTC2	-.005	.07	.00	-.108	1.33	.04
RTC3[a]						
SURFACE COMBATANTS[a]						
CV	.029	.21	-.01	-.077	.66	.03
SUBMARINES	-.246	2.70	.08	-.494	2.61	.15
REPAIR	-.135	1.19	.04	-.124	.99	.04
SEA-BASED AIR	NA	---	---	---	---	---
LAND-BASED AIR	NA	---	---	---	---	---
AMPHIBIOUS	.016	.08	-.01	-.066	.52	.02
AUXILIARY PATROL	.048	.30	-.02	.134	.99	-.05
OTHER[a]						
SHORE	-.187	1.80	.06	-.198	2.03	.06
SEA[a]						
TOURED SEA	-.105	1.21	.03	-.354	3.32	.11
RATINGS:						
TM	.518	6.51	-.19	.183	1.81	-.07
MN[a]						
MT[a]						
GM[a]						

[a]Intercept characteristics.

NA = NUmbers of recruits in this category too small to estimate (see appendix D).

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL
PROBABILITY FOR CONSTRUCTION GROUP

Characteristic	CY 74			CY 76		
	MLE	|t|	ΔP	MLE	|t|	ΔP
Intercept	-.738	5.60	.77	-.292	1.69	.61
PDEPS	.016	.13	-.01	.019	.13	-.01
RACE	.065	.35	-.02	-.271	1.45	.09
AGE17	.206	2.04	-.07	.027	.21	-.01
AGE18[a]						
AGE19	.183	2.06	-.06	-.123	1.15	.05
AGE20P	.117	1.12	-.04	.051	.44	-.02
EDLT11	.519	3.46	-.18	.425	2.48	-.17
ED11	.482	4.25	-.17	.196	1.70	-.08
ED12[a]						
EDGT12	-.501	2.73	.12	.053	.22	-.02
MG3U	-.082	1.02	.02	-.001	.01	.00
MG3L4	-.061	.70	.02	.067	.64	-.03
D.E.P.	-.261	3.09	.07	-.083	.72	.03
6YO	NA	—	—	—	—	—
RTC1	.152	1.71	.05	-.054	.60	.02
RTC2	.127	1.52	-.04	.137	1.15	-.05
RTC3[a]						
SEABEES	-.060	.25	.02	.990	4.75	-.37
SURFACE COMBATANTS[a]						
CV[a]						
SUBMARINES	NA	—	—	—	—	—
REPAIR[a]						
SEA-BASED AIR	NA	—	—	—	—	—
LAND-BASED AIR[a]						
AMPHIBIOUS[a]						
AUXILIARY PATROL[a]						
OTHER[a]						
SHORE[a]						
SEA	.260	1.11	-.09	-.434	2.08	.15
TOURED SEA	-2.22	.75	.23	-.015	.57	.35
RATINGS:						
BU	.152	1.61	-.05	-.774	6.94	.24
CE	-.022	.19	.01	-.888	5.73	.27
CM	.016	.14	-.01	-.712	5.55	.23
SW	-.071	.52	.02	-.821	5.30	.25
UT	.092	.84	-.03	-.911	6.28	.27
EO[a]						
EA[a]						

[a]Intercept characteristics.

NA = Numbers of recruits in this category too small to estimate (see appendix D).

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL
PROBABILITY FOR SHIP OPERATIONS GROUP

Characteristic	CY 74			CY 76		
	MLE	|t|	ΔP	MLE	|t|	ΔP
Intercept	-.409	3.28	.66	-.920	6.51	.82
PDEPS	.508	2.70	-.20	-.034	.21	.01
RACE	.198	1.50	-.08	-.082	.62	.02
AGE17	-.004	.03	.00	.112	.98	-.03
AGE18[a]						
AGE19	-.221	1.80	.08	-.032	.29	.01
AGE20P	-.010	.08	.00	.199	1.76	-.06
EDLT11	.592	4.28	-.23	.368	2.88	-.11
ED11	.286	2.38	-.11	.282	2.61	-.08
ED12[a]						
EDGT12	-.152	.95	.05	.065	.44	-.02
MG3U	.004	.04	-.00	.005	.05	-.00
MG3L4	.024	.23	-.01	-.026	.28	.01
D.E.P.	-.328	4.45	.13	-.315	3.78	.07
6YO	NA	—	—	—	—	—
RTC1	-.018	.19	.01	-.078	.86	.02
RTC2	.104	1.05	-.04	-.021	.22	.01
RTC3[a]						
SURFACE COMBATANTS[a]						
CV	-.113	.78	.04	-.032	.24	.01
SUBMARINES	-.018	.14	.01	-.024	.16	.01
REPAIR[a]						
SEA-BASED AIR	NA	—	—	—	—	—
LAND-BASED AIR	NA	—	—	—	—	—
AMPHIBIOUS	.009	.08	-.00	.111	1.02	-.03
AUXILIARY PATROL	-.232	1.95	.08	.218	1.83	-.06
OTHER	-.298	1.16	.10	.224	1.07	-.06
SHORE	-.026	.11	.01	.178	.89	-.05
SEA[a]						
TOURED SEA	.068	.63	-.03	.000	.00	-.00
RATINGS:						
SM	.285	3.17	-.11	.447	5.26	-.14
QM[a]						
BM[a]						

[a]Intercept characteristics.

NA = Numbers of recruits in this category too small to estimate (see appendix D).

TABLE E-19

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL
PROBABILITY FOR MEDIA GROUP

Characteristic	CY 74			CY 76		
	MLE	|t|	ΔP	MLE	|t|	ΔP
Intercept	-.447	1.41	.67	-.419	1.19	.66
PDEPS	-.074	.22	.03	-2.33	.76	.34
RACE	.007	.02	-.00	-.728	1.59	.21
AGE17	-.920	1.83	.24	-.082	.21	.03
AGE18[a]						
AGE19	-.078	.30	.03	.170	.66	-.06
AGE20P	.133	.52	-.05	.007	.02	-.00
EDLT11	1.800	2.10	-.60	-2.96	.60	.34
ED11	.426	.58	-.16	.022	.07	-.01
ED12[a]						
EDGT12	-.168	.60	-.06	-.715	2.02	.21
MG3U	.052	.20	-.02	-.193	.74	.07
MG3L4	.136	.45	-.05	.049	.21	-.02
D.E.P.	-.513	2.09	.16	-.611	2.12	.19
6YO	NA	—	—	—	—	—
RTC1	-.010	.04	.00	-.001	.01	.00
RTC2	-.194	.90	.07	-.123	.43	.04
RTC3[a]						
SURFACE COMBATANTS[a]						
CV[a]						
SUBMARINES	NA	—	—	—	—	—
REPAIR[a]						
SEA-BASED AIR[a]						
LAND-BASED AIR[a]						
AMPHIBIOUS[a]						
AUXILIARY PATROL[a]						
OTHER[a]						
SHORE[a]						
SEA	-.033	.17	.01	.300	1.48	-.12
TOURED SEA	-.406	.68	.13	-.211	.35	.07
RATINGS:						
PH[a]						
DM[a]						
JO[a]						
LI[a]						

[a]Intercept characteristics.

NA = Numbers of recruits in this category too small to estimate (see appendix D).

TABLE E-20

PROBIT ESTIMATES OF FOUR-YEAR SURVIVAL
PROBABILITY FOR OPERATIONS SPECIALIST

Characteristic	CY 74		
	MLE	|t|	ΔP
Intercept	-.435	4.07	.67
PDEPS	.478	2.48	-.19
RACE	-.047	.29	.02
AGE17	.061	.61	-.02
AGE18[a]			
AGE19	-.143	1.34	.05
AGE20P	-.080	.64	.03
EDLT11	.291	2.58	-.11
ED11	.291	2.58	-.11
ED12[a]			
EDGT12	-.248	1.76	.08
MG1&2[a]			
MG3U	-.007	.09	.00
MG3L4	.093	.72	-.03
D.E.P.	-.125	1.59	.04
6YO	.227	1.11	-.09
RTC1	.057	.63	-.02
RTC2	.099	1.05	-.04
RTC3[a]			
SURFACE COMBATANTS[a]			
CV	.096	.74	-.04
SUBMARINES	-.326	1.85	.11
REPAIR[a]			
SEA-BASED AIR[a]			
LAND-BASED AIR[a]			
AMPHIBIOUS	.290	2.43	-.11
AUXILIARY PATROL	.117	.04	-.04
OTHER	-.163	.59	.06
SHORE	-.444	1.19	.14
SEA[a]			
TOURED SEA	.019	.19	-.01

[a]Intercept characteristics.

NA = Numbers of recruits in this category too small to estimate (see appendix D).

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